DOCUMENT RESUME

ED 164 819 CE 018 464

AUTHOR	Sager, E.; And Others
TITLE	Educational Alternatives for Boating Safety Programs. Final Report.
INSTITUTION	Wyle Laboratories, Huntsville, Ala.
SPONS AGENCY	Coast Guard, Washington, D.C.; Department of Transportation, Washington, D.C.
REPORT NO	CG-D-53-78; MSR-78-08
PUB DATE	May 78
GRANT	DOT-CG-40672-A, TO-16
NOTE	385p.; Not available in hard copy due to reproducibility problems
AVAILABLE FROM	National Technical Information Service, Springfield, Virginia 22151
EDRS PRICE	MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS	*Accident Prevention; Audiovisual Instruction; *Boatmen; Community Service Programs; Comparative Analysis; Courses; Delivery Systems; *Educational Alternatives; Evaluation; Field Instruction; Home Study; Instructional Films; Instructional Materials; Mass Media; *Media Selection; *Military Personnel; Navigation; News Media; Participant Involvement; Publications; Publicize; Recall (Psychological); *Safety Education; Teaching Methods; Television; Training Objectives; *Training Techniques
IDENTIFIERS	Coast Guard

ABSTRACT

The Coast Guard, in efforts to improve the safety of recreational boating, undertook research to identify educational alternatives in boating safety programs. Background research was done to assess materials from areas of boating education and education in comparable recreational areas. Research was also conducted to review educational and mass media methods suitable for conducting boating educational programs. Output from this research provided information for planning and conducting a boater educational program. The prototype program utilized mass media, formal boating courses, Coast Guard visitations, and home study methods. The program was directed toward reducing collision and loading-related accidents and fatalities. A video tape supplement was produced to present the prototype program in the perspective of an actual educational effort. Two evaluations of the mass media-type messages using experimental methods were performed. One experiment tested three levels of participatory response on the part of the viewers of a specially prepared television public service announcement for boater education. The version evoking highest participatory response levels produced greater recall of information given in the announcement. Another experiment compared a "model" pamphlet design to a "typical" pamphlet design used in other boating educational materials. Recall of pamphlet information was greater for the "model" design. (Appendix materials, which comprise about one half of this document, include, among other things, mailing lists for private and government agencies, and publishers relevant to boating and boating education.) (CSS)

ED164819

CE

Report No. CG-D-53-78

EDUCATIONAL ALTERNATIVES FOR BOATING SAFETY PROGRAMS

FINAL REPORT

Document is available to the public through the
National Technical Information Service,
Springfield, Virginia 22151

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

MAY 1978

Prepared for

U.S. DEPARTMENT OF TRANSPORTATION
United States Coast Guard
Office of Research and Development
Washington, D.C. 20590

CE 018 464

NOTICE

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

The contents of this report do not necessarily reflect the official view or policy of the Coast Guard; and they do not constitute a standard, specification, or regulation.

This report, or portions thereof may not be used for advertising or sales promotion purposes. Citation of trade names and manufacturers does not constitute endorsement or approval of such products.

Technical Report Documentation Page

1. Report No.
CG-D-53-78

2. Government Accession No.

3. Recipient's Catalog No.

4. Title and Subtitle
EDUCATIONAL ALTERNATIVES FOR BOATING
SAFETY PROGRAMS

5. Report Date
May 1978

6. Performing Organization Code
G-DSA

7. Author(s)
E. Sager, K. Geissler, B. Hayes, and J. Berman

8. Performing Organization Report No.
MSR 78-08

9. Performing Organization Name and Address
WYLE LABORATORIES
7800 Governors Drive West
P. O. Box 1008
Huntsville, AL 35807

10. Work Unit No. (TRAIS)

11. Contract or Grant No.
DOT-CG-40672-A, T.O. 16

12. Sponsoring Agency Name and Address
U. S. Department of Transportation
United States Coast Guard
Office of Research and Development
Washington, DC 20590

13. Type of Report and Period Covered
Final Report
August 1976 to January 1978

14. Sponsoring Agency Code
G-DSA

15. Supplementary Notes
The U. S. Coast Guard, Office of Research and Development's technical representative for the work performed herein was Paul McMahan.

16. Abstract
The Coast Guard has undertaken research to identify educational alternatives in its long term efforts to improve the safety of recreational boating. Other organizations involved in boating safety education may find the illustrative approaches valuable in designing their boating safety education efforts.

This report consists of three major parts. Part One is background research covering an assessment of materials from the areas of boating education and education in comparable recreational areas. Research was also conducted to review educational and mass media methods suitable for conducting boating educational programs. Output from this research (when combined with boat accident cause analyses) provided information for planning and conducting a boater educational program. Part Two is the presentation of a prototype educational program utilizing mass media, formal boating courses, Coast Guard visitations, and home study methods. The program is directed to reducing collision and loading related accidents (and fatalities). A video tape supplement to this report was produced to present the prototype program in the perspective of an actual educational effort. Part Three is the report of two evaluations of mass media type messages using experimentation methods. One experiment concerned testing of three levels of participatory response on the part of viewers of a specially prepared television public service announcement for boater education. The version evoking highest levels of participatory response produced greater recall of information given in the announcement. The other experiment was a comparison of "model" pamphlet design to "typical" pamphlet design used in other boating educational materials. Recall of pamphlet information was greater for the "model" design.

17. Key Words
Safety Education, Boat Operator Training, Boating Safety, Boater Education

18. Distribution Statement
Document is available to the U. S. public through the National Technical Information Service, Springfield, Virginia 22161

19. Security Classif. (of this report)
Unclassified

20. Security Classif. (of this page)
Unclassified

21. No. of Pages
350

22. Price

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized

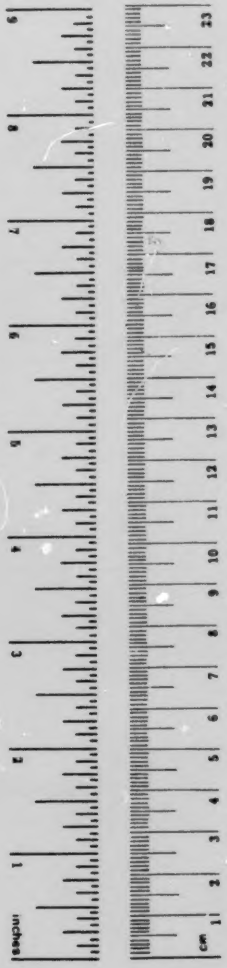
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

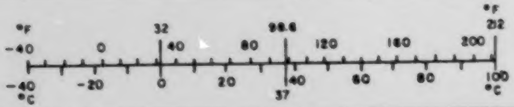
---

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



Section TABLE OF CONTENTS Page

1.0 INTRODUCTION 1

1.1 General Objectives for the Project 2
1.2 General Guidelines for Educational Alternatives for Recreational Boating Safety 3
1.3 Overview of the Methods, Personnel and Organization of the Project 3

2.0 PART ONE - BACKGROUND RESEARCH FOR DETERMINING INSTRUCTIONAL ALTERNATIVES FOR BOATING EDUCATIONAL PROGRAMS 7

2.1 Subtask 1 - Assessment of Boating Education and Boat Operation Instructional Materials 7

2.1.1 Definitions for the Subtask 7
2.1.2 Method and Research Design 8
2.1.3 Results for the Acquisition of Boating Educational Materials 9

2.1.3.1 Initial Sorting of Received Materials 10

2.1.4 Method for Analysis in Area One - Accident Category Emphasis 11

2.1.4.1 Rationale and Procedure for Quantitative Content Analysis 11
2.1.4.2 Procedure for Evaluation of Audio-Visual Materials 12
2.1.4.3 Content Analysis Computations 13

2.1.5 Results of Quantitative Content Analysis 13
2.1.6 Relative Content Compared with State Fatality Rates 17
2.1.7 Outcome for Area Two - Format of Boating Safety Materials Received 20
2.1.8 Outcome for Area Three - Methods of Distribution by Source Agencies 20
2.1.9 Outcome for Area Four - Educational Utility of Materials 22
2.1.10 Outcome for Area Five - Types and Sizes of Boats Addressed 22
2.1.11 Conclusions for Assessment of Boating Education and Boat Operation Instructional Materials 22

2.2 Subtask 2 - Assessment of Educational Alternatives from Other Recreational Areas and Selected Traffic Highway Safety Programs; and Journalistic Technical Evaluation of Materials in All Areas 24

2.2.1 Rationale and Purpose 24
2.2.2 Method and Research Design for Assessment 25
2.2.3 Results of Assessment 27
2.2.4 Method and Research Design for Journalistic Evaluation of Boating Educational Materials 32
2.2.5 Results of Selection of Boating Materials 34

TABLE OF CONTENTS (continued)

Section | Page

2.2.6 Results of Technical Journalistic Evaluation of Boating Educational Materials 35

2.3 Subtask 3 - Review of Educational Methods and Audio-Visual Techniques for Boater Educational Programs 40

2.3.1 Introduction and Purpose 40
2.3.2 Presentation of Educational Method Alternatives 41
2.3.3 Use of Audio-Visual Support Media 49
2.3.4 Resource Materials for Educational Methods and Media Support 61

2.4 Subtask 4 - Review of Mass Media Educational Alternatives for Boater Educational Programs 66 66

2.4.1 Introduction 66
2.4.2 Electronic Mass Media Educational Alternatives (Radio and Television) 66

2.4.2.1 Potential of the Electronic Mass Media for Recreational Boater Education 67
2.4.2.2 Vocabulary and Utility of the Electronic Media 68
2.4.2.3 Drawbacks of Electronic Media 71
2.4.2.4 Electronic Mass Media Applicability 73
2.4.2.5 Specific Considerations on Development/Placement of Programs and PSAs 74
2.4.2.6 Guide to Using Electronic Media 76

2.4.3 Print Mass Media Educational Alternatives 82

2.4.3.1 Vocabulary and Utility of the Print Media 82
2.4.3.2 Limitations and Other Characteristics of the Print Media 86
2.4.3.3 Mass Media Summary Statement 87
2.4.3.4 Guide to Using Print Mass Media 88

2.4.4 Local Boater Media Preference Study 93

2.4.4.1 Introduction and Purpose 93
2.4.4.2 Method and Procedures 94
2.4.4.3 Results of the Media Preference Study 97

3.0 PART TWO - PROTOTYPE EDUCATIONAL PROGRAM FOR MAJOR BOATING ACCIDENT TYPES 109

3.1 Educational Objectives and Message Content for Prototype Program-Collision and Loading Related Accident Education Combined 110

3.2 Selection of Educational Materials (Media and Production) and Delivery Systems for Developing and Disseminating Messages 116

TABLE OF CONTENTS (continued)

Section | Page

3.3 Resources for Delivering the Educational Program to the Recreational Boater Public 116

- 3.3.1 Delivery System 1 - Utilization of Mass Media (Print and Electronic Format) 117
- 3.3.2 Delivery System 2 - Utilization of Formal Boating Courses 121
- 3.3.3 Delivery System 3 - Utilization of Visitation and Vessel Boarding Programs 123
- 3.3.4 Delivery System 4 - Utilization of Home Study 124

3.4 Illustrative Collision and Loading Related Educational Program 124
3.5 Coordination of Production and Dissemination of Boating Educational Materials 143
3.6 Production of Illustrative Messages

4.0 PART THREE - EXPERIMENTAL DEMONSTRATION OF TWO ASPECTS OF DESIGN OF EDUCATIONAL MESSAGES FOR ELECTRONIC MEDIA AND PRINT MEDIA 148

4.1 General Introduction to Demonstrations 148
4.2 Comparison of Three Levels of Participative Response to a Television Public Service Announcement 148

- 4.2.1 Background 148
- 4.2.2 Method for Television Announcement Demonstration 150
  - 4.2.2.1 Research Design 150
  - 4.2.2.2 Television Spot Test Materials 150
  - 4.2.2.3 Subjects 152
  - 4.2.2.4 Procedure 153
- 4.2.3 Results of Televison Announcement Demonstration 155
  - 4.2.3.1 Effect of Boating Experience and Boating Course Participation on Recall Scores 155
  - 4.2.3.2 Impression of the Television Announcements 155
  - 4.2.3.3 Recall of the Information in the Television Announcements 160

4.3 Demonstration of Effectiveness of Layout and Design in Pamphlet Production 166

- 4.3.1 Background 166
- 4.3.2 Method for Pamphlet Demonstration 168
  - 4.3.2.1 Subjects 168
  - 4.3.2.2 Procedure for Task 1: Laboratory Reading and Recall 168
  - 4.3.2.3 Procedure for Task 2: Simulation Reading and Recall 170

TABLE OF CONTENTS (continued)

Section Page

4.3.3 Results of Pamphlet Demonstration 170
4.3.3.1 Task 1: Laboratory Reading and Recall 170
4.3.3.2 Task 2: Simulation Reading and Recall 172

REFERENCES 175

APPENDIX A - MAILING LIST FOR BOATING EDUCATIONAL MATERIALS

APPENDIX B-1. SAMPLE LETTER FOR STATES AND TERRITORIES
APPENDIX B-2. LETTER PREPARED FOR FEDERAL AGENCIES
APPENDIX B-3. SAMPLE LETTER PREPARED FOR PRIVATE PUBLICATION COMPANIES
APPENDIX B-4. SAMPLE LETTER PREPARED FOR INSURANCE COMPANIES
APPENDIX B-5. SAMPLE LETTER PREPARED FOR BOAT MANUFACTURERS

APPENDIX C - WORK COUNT VALUES OBTAINED IN QUANTITATIVE CONTENT ANALYSIS OF PRINTED MATTER FOR EACH STATE/TERRITORY SENDING MATERIALS

APPENDIX D-1. SCATTERGRAM FOR COMPARISON OF STATE COLLISION FATALITY RATES AND COUNTS OF CONTENT IN STATE BOATING MATERIALS ADDRESSING COLLISION TOPICS
APPENDIX D-2. SCATTERGRAM FOR COMPARISON OF STATE LOADING RELATED FATALITY RATES AND WORD COUNTS OF CONTENT IN STATE BOATING MATERIALS ADDRESSING LOADING RELATED TOPICS

APPENDIX E - REGISTERED BOATS AND NORMALIZED FATALITY RATES FOR STATES RETURNING EDUCATIONAL MATERIALS

APPENDIX F - MAILING LIST FOR RECREATIONAL EDUCATIONAL MATERIALS

APPENDIX G - COPY OF FORM LETTER REQUESTING EDUCATIONAL INFORMATION FROM OTHER RECREATIONAL AREAS

APPENDIX H - INSTRUCTIONS TO WYLE "JUDGES" FOR SELECTION OF BEST BOATING, MOTORCYCLING, AND SNOWMOBILING PRINTED MATERIALS

APPENDIX I - INSTRUCTIONS TO CONSULTANT PANEL FOR JOURNALISTIC TECHNICAL EVALUATION OF BOATING, MOTORCYCLING, AND SNOWMOBILING PRINTED MATERIALS

APPENDIX J - CLASSIFICATIONS AND COMMENTS GIVEN BY JUDGES FOR SELECTION OF BOATING EDUCATIONAL MATERIALS

APPENDIX K - CONTRIBUTING RESOURCE PERSONS AND PUBLICATIONS FOR MASS MEDIA EDUCATIONAL ALTERNATIVES

APPENDIX L - INSTRUCTIONS AND ATTITUDE/MEDIA PREFERENCE QUESTIONNAIRE

APPENDIX M - LOGOS FOR EDUCATIONAL PROGRAMS

APPENDIX N - SCRIPT FOR VTR SUPPLEMENT TO THE EDUCATIONAL ALTERNATIVES FOR BOATING SAFETY PROGRAM

APPENDIX O-1. SCRIPT FOR TELEVISION SPOTS (10 SECONDS EACH) USING COMPUTER ANIMATION OF EDUCATIONAL LOGOS

TABLE OF CONTENTS (concluded)

Section

APPENDIX O-2. SCRIPT FOR TELEVISION SPOT (30 SECONDS) USING ARTIST ANIMATION

APPENDIX O-3. SCRIPT FOR 35 MM SLIDE SHOW ON NAVIGATION/PILOTING AIDS

APPENDIX O-4. SCRIPT FOR 35 MM SLIDE SHOW ON NAVIGATION LIGHTS

APPENDIX O-5. STORYBOARD FOR 16 MM FILM ON COLLISION ACCIDENTS

APPENDIX O-6. SINGLE CONCEPT PAMPHLET, "SMALL BOAT STABILITY" (MODEL VERSION OF THE EXPERIMENTAL PAMPHLET AND ILLUSTRATIVE MATERIAL FOR LOADING RELATED EDUCATIONAL PROGRAM)

APPENDIX O-7. SCRIPTS FOR RADIO SPOT (30 SECONDS EACH)

APPENDIX O-8. SCRIPT PREPARED BY HUNTSVILLE POWER SQUADRON MEMBER J. BOWMAN FOR USE WITH SUPER 8 FILM IN POWER SQUADRON COURSE

APPENDIX O-9. PHOTOS OF ADVERTISING SPECIALTIES FOR COLLISION AND LOADING RELATED ACCIDENT EDUCATION

APPENDIX O-10. COPY FOR NEWSPAPER SUPPLEMENT INSERT

APPENDIX O-11. COPY FOR FEATURE INTENDED FOR BOATING MAGAZINES

APPENDIX O-12. COPY FOR FEATURE INTENDED FOR HUNTING AND FISHING MAGAZINES

APPENDIX O-13. NEWSPAPER FILLER ITEMS

APPENDIX P - SCRIPTS FOR THREE VERSIONS OF THE ANIMATED TELEVISION SPOTS FOR EXPERIMENTAL DEMONSTRATION

APPENDIX Q - TEST BOOKLET USED IN THE TELEVISION PSA DEMONSTRATION EXPERIMENT

APPENDIX R - RECALL TEST FOR THE LABORATORY READING DEMONSTRATION

APPENDIX S - RECALL TEST FOR THE SIMULATION READING DEMONSTRATION

11

EDUCATIONAL ALTERNATIVES FOR BOATING SAFETY PROGRAMS

1.0 INTRODUCTION

Interest in boating safety programs has increased notably since passage of the Federal Boat Safety Act of 1971. The result has been an effort that is national in scope to reduce recreational boating accidents. Much of the current attention in developing and implementing programs has been focused upon ways in which boat operator skills and judgment can be improved.

Systematic attempts on a national or regional scale to modify an individual's behavior for his own self-protection from accident or harm have considerable precedent. Advocation of seat belt use in automobiles, regular health-related checkups, and driver education courses are the most frequently cited examples. The approaches taken in the campaigns include advertising methods, enforcement of legislation or administrative directives, and education and/or instruction. The outcomes of these efforts are somewhat similar in that none have succeeded uniformly in producing compliance for the self-protecting behavior they advocate, regardless of the experienced coordination of electronic and print media, and creative and artistic effort.

The trend for solutions seems to be toward development of systems where the person being protected is not required to take an active role. For example, the installation of energy absorbing steering wheels or air bags in automobiles provides protection without any active participation on the part of the persons being protected. These approaches are referred to currently as "passive" and have been more effective in preventing harm than the alternate, active strategies. Consider the track record for the active strategies. The seat belt campaign has been termed basically ineffective; automobile driver education courses and licensing test scores affect neither traffic violations nor accident rate (Reference 1); in one example of attempted enforcement, requirement of immunication of school children before admittance to elementary school produced only 80% compliance on the part of the parents (References 2 and 3). Self-protecting behavior apparently remains under the primary influence of an individual's personal motivation rather than training programs and campaign methods.

Present programs concerned with boater safety utilize a combination of active and passive methods. Active approaches are employed where educational efforts are directed to improving boater judgment and informing boaters on safe boating operation. Passive approaches are being employed where protective features such as level flotation are being incorporated into boat production. Finally, there is enforced legislation of operator compliance with rules of the road and with stowage and recommended maintenance of safety equipment.

This project addresses the issues and methods central to educational solutions to recreational boating accidents. It is an attempt to offer a reasoned and documented report that can assist in future justification of expenditures for educational programs, and to offer guidelines for their development.

1.1 General Objectives for the Project

The general objectives for this project are twofold. First, there is a determination of instructional alternatives available for educational solutions to recreational boating accidents. The term instructional alternatives is used in the broadest sense. That is, it includes boating educational materials, comparable educational materials in other recreational activities, relevant general educational methodologies, and relevant print and electronic mass media campaign methodologies. Completion of this phase of the research will result in a complete illustrative program for collision and loading related pleasure boat accident education. The illustrative program consists of a repository of materials, methods, and resources for development of actual boating educational programs.

Second, the project will offer documentation for the relative effectiveness of two aspects of boater education: a comparison of methods used in television spots for public service announcements (PSAs), and a comparison of methods used for educational single concept pamphlets. These two media were selected because the outcome of successful testing of the alternatives would provide valuable guidelines for construction of future PSAs and pamphlets.

1.2 General Guidelines for Educational Alternatives for Recreational Boating Safety

The intentions for the Coast Guard Boating Safety Program are directed toward the reduction of property damage, personal injuries, and fatalities for recreational boating. Within this general mission, there are three guidelines concerning the way in which the various programs should be carried out. These guidelines impinge directly upon the nature of the educational alternatives that are appropriate for existing and future safety programs. First, boating safety educational programs should be carried out as sources of assistance to achieving compliance with recommended practices for boaters. Educational or instructional approaches are preferable to enforcement, and boaters' participation in the educational programs should be voluntary. Second, boating safety educational programs should retain the recreational quality of boating. Logically, additional administrative directives and legislation should be minimized. It is likely that in the future, maintaining the recreational quality of boating may actually increase in importance. Although the decreasing supplies of fuel for power craft are causing higher costs, there are increasing numbers of persons who will have greater amounts of leisure time. Consider the implications of a four day work week. Third, boating safety educational programs should be integrated with other existing programs in recreational boating and in related recreational activities. In addition, the boating safety educational programs should be consistent with existing and intended legislation concerning manufacturing and performance standards for boats and boating equipment. This project is intended to provide educational and instructional alternatives for boating safety programs within the Coast Guard guidelines. Other organizations involved in boating safety education may find the illustrative approaches valuable in designing their boating safety education efforts.

1.3 Overview of the Methods, Personnel and Organization of the Project

The research for the project was conducted in three parts. A flow diagram for development of the alternatives for the overall educational program is presented in Figure 1.

PART ONE

Part One is the background research for determining all instructional alternatives for boating educational programs. The work was carried out within four research subtasks.

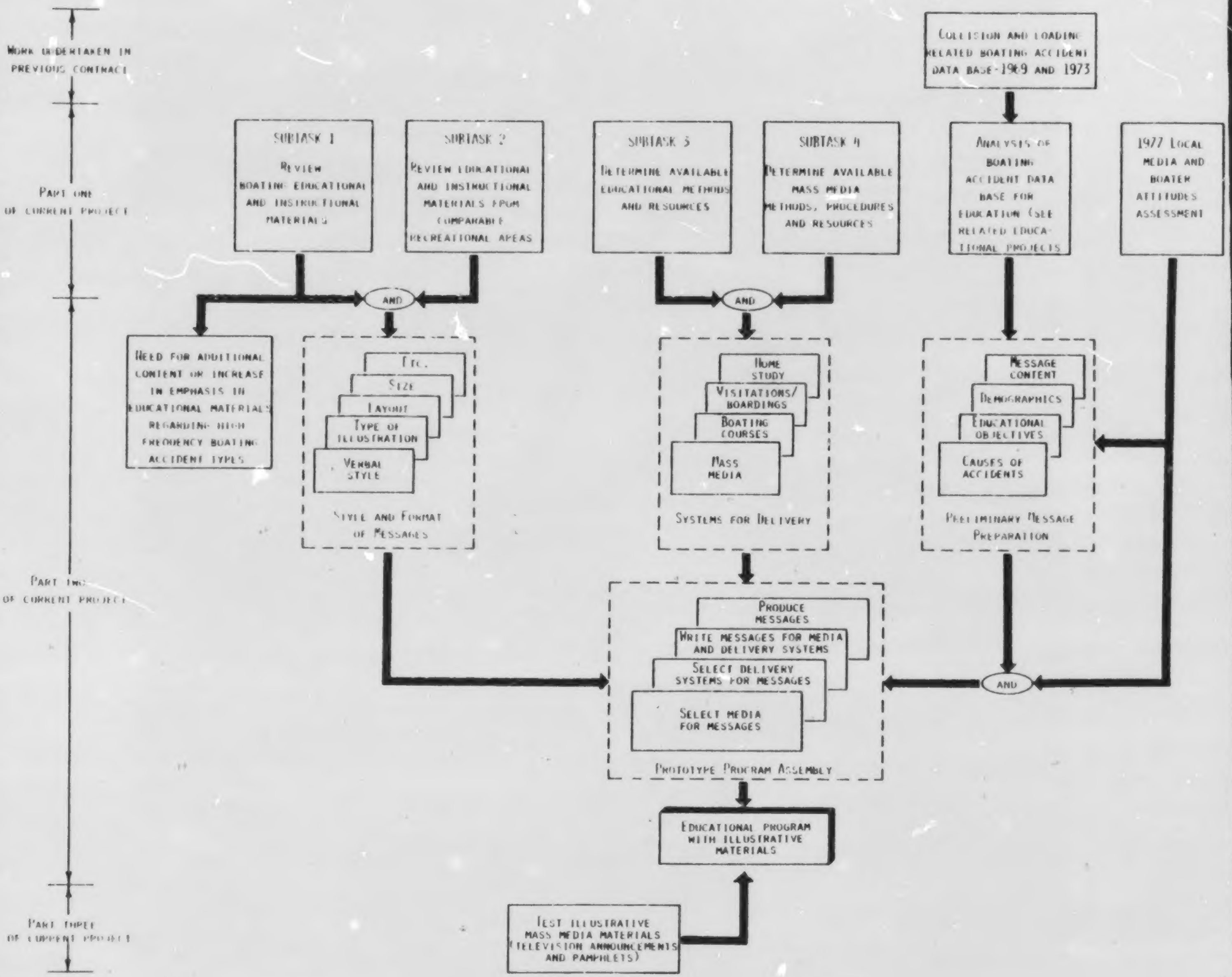

Work undertaken in previous contract
Part one of current project
Part two of current project
Part three of current project
Subtask 1
Review boating educational and instructional materials
Subtask 2
Review educational and instructional materials from comparable recreational areas
Subtask 3
Determine available educational methods and resources
Subtask 4
Determine available mass media methods, procedures and resources
Collision and loading related boating accident data base-1969 and 1973
Analysis of boating accident data base for education (see related educational projects
1977 Local media and boater attitudes assessment
AND
AND
Need for additional content or increase in emphasis in educational materials regarding high frequency boating accident types
Etc.
Size
Layout
Type of illustration
Verbal style
Style and format of messages
Home study
Visitations/boardings
Boating courses
Mass media
Systems for delivery
Message content
Demographics
Educational objectives
Causes of accidents
Preliminary message preparation
Produce messages
Write messages for media and delivery systems
Select delivery systems for messages
Select media for messages
Prototype program assembly
AND
Educational program with illustrative materials
Test illustrative mass media materials (television announcements and pamphlets)

FIGURE 1. WORK FLOW DIAGRAM FOR DEVELOPMENT OF EDUCATIONAL PROGRAM FOR RECREATIONAL BOATING ACCIDENT AND FATALITY REDUCTION

Subtask 1. Assessment of Boating Education and Boat Operation Instructional Materials

This task utilizes a combination of research methods including survey techniques to locate and acquire materials, and content analyses to review those materials for application to major accident causes. This work was initiated by M. Pfauth; the work was accomplished by B. Hayes and E. Sager.

Subtask 2. Assessment of Educational Alternatives from Other Recreational Areas and Selected Traffic Highway Safety Programs; and Journalistic Technical Evaluation of Materials in All Areas

This effort parallels the methods used in the location and review of boating educational materials. The intent of collecting this information is to explore alternative educational/instructional programs and methods that may be incorporated into boating education programs, and to compare the printed boating educational materials with the printed materials from other areas. This work was initiated by C. Stiehl, and expanded by K. Geissler. A consideration of journalistic standards for comparison of boating materials with other recreational safety materials was also undertaken. This work was conducted by consultants.

Subtask 3. Review of Educational Methods and Audio-Visual Techniques for Boater Educational Programs

This task primarily employs traditional literature search methodology. Educational methods were reviewed and developed into tabled working materials that may be used by researchers in the area of boating education, publishers of educational/instructional materials, and teachers of boating courses. The major educational methods include lecture (with and without media support), small group discussions, role playing, structured experience, games and simulations, case study, and programmed instruction. In addition, a discussion of audio-visual support materials is presented. This subtask was accomplished by K. Geissler, J. Murray (consultant), and E. Sager.

Subtask 4. Review of Mass Media Educational Alternatives for Boater Educational Programs

The design of this task entails a combination of literature search methodologies and direct contact with mass communication-related agencies. The intent of this aspect of the project is to determine mass media educational alternatives, and to establish the procedures for their use. The effort includes a determination of techniques and resource agencies to research target populations, to develop the creative part of the programs, and to evaluate the effects of the programs. There is also a study to determine mass media preferences for local boaters and to compare them with national media statistics. Both electronic and print media are considered. This subtask was completed by J. Berman and E. Sager

PART TWO

Part Two is the assembly stage for the various messages developed for the illustrative prototype educational program. The content for the program was determined by analysis of BARs for fatal loading related accidents and for fatal collision accidents (DOT Contract DOT-CG-40672-A, Task Orders 16 and 27). These analyses included a precise inquiry into boat operator behavior and the boating situations that were cited as: 1) direct causes of the accidents or 2) factors related to the occurrence of the accidents. The accident initiators specified for program content were selected according to the amenability of the boat operators' skill or judgment to modification using educational intervention, and according to the relative frequency with which the initiators were cited as contributing to accidents and fatalities. In addition to the information concerning the accident initiators, supplementary information was determined for the demographic characteristics of the boat operators involved in the accidents. The demographic characteristics used for the present analysis are those characteristics typically used in planning mass media advertising campaigns. Supplementary information is determined for personality and attitudinal characteristics for a small sample of boat owners. This stage for the project was complete when the various segments of the illustration program were written and produced in sample form. The showcase of materials and strategy is presented in a 30 minute video tape cassette. The work was accomplished using consultants and several production contractors.

PART THREE

Part Three is the test and evaluation stage for the project and deals with television spots and single concept pamphlets. This phase of the project is intended to provide suggestions for development of future educational programs and materials. The outcome of the demonstrations was to provide guidelines for executing the mass media messages consistent with empirical findings. The research was designed by E. Sager, J. Berman, and J. Murray. The research was conducted by K. Geissler.

2.0 PART ONE - BACKGROUND RESEARCH FOR DETERMINING INSTRUCTIONAL ALTERNATIVES FOR BOATING EDUCATIONAL PROGRAMS

Phase One is concerned with the reporting of background research for determining alternative methods and media for boating educational programs. The effort is divided into four subtasks which are presented in independent discussions. Each discussion includes the rationale and objectives for each subtask, methods and research designs, and findings of the effort.

2.1 Subtask 1 - Assessment of Boating Education and Boat Operation Instructional Materials

The production and publication of boating safety materials is notably widespread among agencies and sponsoring organizations. These materials commonly take the form of brochures, books, films, newspaper columns or features, magazine columns or articles, television and radio messages including special programs, and face-to-face advice and instruction given by knowledgeable persons. To date, no known effort has been directed to providing access to a comprehensive list of the available materials for the public, along with ascertaining the utility of the materials for interested persons and agencies. The outcome of this subtask should be useful for researchers and practitioners in the areas of boating safety and boater education, and perhaps for publishers of educational and instructional materials as well.

The specific intentions for this subtask are:

1. to provide access to instructional material for all possible interested agencies and persons, i.e., the boater public
2. to identify the current uses for the materials: i.e., where the materials are being made available, and the intended application of the materials
3. to assess the material according to aspects of instructional usefulness.

2.1.1 Definitions for the Subtask

Instructional material refers to printed matter, films, electronic media tapes (VTR and audio), and slide/still-frame film strips. Instructional usefulness refers to a consideration of four criteria: the amount of instructional material that precisely addresses the major accident initiators; the relative authenticity of the material (reliability of authorizing agency); the methods of distribution; and the accessibility of the materials to potential users.

2.1.2 Method and Research Design

The research design for this subtask relies on two conventional research methodologies. Survey methods were used to acquire and classify instructional materials, and content analysis procedures (quantitative word counts) were used to identify amount of instructional material addressing major accident causes.

The research design required acquisition of as many boating education materials available to the public as possible (so that inferences about representativeness could be made). As a result, all reasonable agencies and companies were contacted for assistance. The list of source agencies and companies was assembled from Wyle records and various library resources. The resulting list included five groups of organizations.

- states and territories (N = 56)
- federal agencies concerned with recreational boating (N = 11)
- private publication companies specializing in boating education/safety materials (N = 69)
- national insurance companies that underwrite recreational boats in the southeastern states area (N = 21)
- boat manufacturers which consisted of a systematic sample (every tenth company from a list of companies given in the January 1976 Vol. 41, No. 1 issue of Boating magazine); companies were contacted that manufactured at least one boat model less than 20 ft (6.1 m) in length. This latter restriction was intended to confine the kind of instructional safety materials received to those that addressed the more frequently occurring kinds of boating accidents (N = 38).

The requests for materials were made via a form letter adapted to the addressee and directed to persons and addresses (when given) listed in the National Safety Council's National Directory of Boating Safety Materials (1975-76 edition). The letters asked for all educational matter that the addressee could make available for the project. No mention was made of the comparisons that would be made, or that the project primarily concerned collision and loading related accident types. A complete mailing list is included in Appendix A. Examples of the form letters sent to agencies and companies are presented in Appendix B.

The analysis of the materials dealt with five different questions or topical areas.

- Area One covered the relative emphasis of content regarding type of accident cause (this project grouped the accident types as "Collision Accidents," "Loading Related Accidents," and "All Others").
- Area Two was the format or media for materials such as newspaper column or feature, 16 mm and Super 8 mm film, books, pamphlets, still-frame for formal classes or commercial television, 35 mm slides and film strips, billboards and posters, magazines and periodicals, etc.
- Area Three covered means and source agencies for material distribution.
- Area Four involved the intended use of the materials, including classroom instruction, mass media communication, home reference, point of purchase display, and place of use (waterway) display.
- Area Five concerned the relative emphasis on different type of boats (i.e., size, power and intended use) addressed in materials.

The content analyses and other evaluation procedures were carried out by two Wyle professional-level researchers acquainted with recreational boating, as well as with general educational methods.

2.1.3 Results for the Acquisition of Boating Educational Materials

The results in terms of the various materials submitted by the resource organizations (in compliance with the form letters) are given in Table 1.

TABLE 1. RELATIVE RETURNS FOR REQUESTED MATERIALS FROM AGENCIES AND ORGANIZATIONS

AGENCIES/ORGANIZATIONS RECEIVING REQUESTS FOR MATERIALS	NUMBER OF REQUEST LETTERS SENT	NUMBER OF RESPONSES* (RETURN)	PERCENTAGE OF RESPONSE (RETURN)
States and Territories	56	29	52%
Federal Agencies	11	5	45%
Private Publication Companies	70	25	36%
Insurance Companies	21	7	33%
Boat Manufacturers	38	15	39%
TOTAL	196	81	--

*Return values are responses to the request for materials and include cases of: 1) letters informing that there were no materials available or that requested materials were not being sent, 2) materials sent that were not requested, and 3) the receipt of the requested boating safety and educational materials.

The proportion of return for the five groups of organizations ranged from 33% for insurance companies to 52% for states and territories. The relative rates of return cannot be interpreted necessarily as evidence of compliance with the Wyle request. Rather the differences between groups may have resulted from the actual absence of educational materials available through that source. Generally speaking, this return was considered adequate to proceed with the analysis and evaluation.

2.1.3.1 Initial Sorting of Received Materials - The boating materials were initially sorted, as they were received, according to the source agency (state, federal, insurance companies, boat manufacturers, and private organizations). An entry log was generated to provide a reliable means for recording and cross referencing the material. This enabled retrieval of necessary items for subsequent data manipulations. The source agency, material title, methods of distribution and educational utility, geographic location of the source distributing the material, any additional information available, and any further action required (returning of TV spots to the agency, etc.) were noted for the materials.

2.1.4 Method for Analysis in Area One - Accident Category Emphasis

Materials were identified by document title and then by subsequent scanning of each item as addressing one accident category or another ("collision," "loading related," and "all others").

Those content areas included within each accident category consisted of:

- Collision (collisions with fixed object, floating object, or another boat; runs aground; navigation aids [charts, compass reading and use, buoys], navigation lights, and rules of the road).
- Loading related (accidents involving capsizing, falls overboard, sinking, swamping, boarding/loading, locks and dams [sudden water condition changes]).
- All others (fire and explosions, fueling and ventilation, equipment . [extinguishers and flame arrestors], distress signals, weather, PFDs, boating accident reports, first aid and emergency procedures, general [such as locking through], correct rowing procedures, and any boating accident material that could involve both collision and loading related categories).

2.1.4.1 Rationale and Procedure for Quantitative Content Analysis - Quantitative content analysis is an excellent means for determining relative amounts of kinds of information. Content analysis is "a research technique for the objective, systematic and quantitative description of the manifest content of communication (p. 291)" (Reference 4). It is acknowledged that the amount of material, i.e., the extent to which a particular accident category is discussed within a document is only one indicator of that document's overall instructional usefulness. Certainly other qualitative evaluations must be considered. However, "quantity" does offer hard evidence concerning the amount of emphasis given to various topics.

Content analysis procedures were used for this effort, and consisted of a basic word count technique. A "word" was defined for the analysis as any word consisting of four or more letters. The word count was obtained by counting all the lines of words addressing a particular subject, determining the number of words of a typical line in the passage, and then multiplying the total number of counted lines by the number of words in a typical line. The typical line was established by counting the words in several lines in the passage and estimating the average. A demonstration of this procedure using an excerpt from "Delaware-Boating" is presented in Figure 1.

Line	Text	Words	*Outcome of Analysis*
1	Prepare outboard gas and oil mixtures on the dock		
2	when possible. Pour gasoline and oil into a separate	6	*Two typical lines of 6 words each divided by 2 (average)*
3	container and shake well. Then strain into the tank		
4	with a strainer/funnel. Grit, water and dirt can ruin a		
5	motor. Do not fill tank completely. Allow for expan-		
6	sion. Store extra gasoline on board in a separate		*No. of actual lines x averaged no. of words in typical line = word count (8 x 6 = 48)*
7	safety approved auxiliary tank. Be sure the tank has a	6	
8	good air supply. Keep the tank away from motor and batteries.		

FIGURE 1. DEMONSTRATION OF WORD COUNT PROCEDURE

Note in Figure 1 that the actual number of words is 76, but the estimate resulting from the content analysis is only 48. Because the procedure is constant for all of the materials, and the styles of writing were not excessively variable, the use of this procedure can be considered as providing a standardized and reasonably objective measure. An individual word count (every word counted) was used where a line count would not be practical or accurate; e.g., with irregular lines, such as in charts or other illustrations, or where very little verbal content was given.

The word counts for each category were then summed over all documents. All frequency values given for the comparisons refer to these cumulative summations.

2.1.4.2 Procedure for Evaluation of Audio-Visual Materials - Audio-visual materials were also reviewed and the relative quantities of content material pertaining to this project were reported in estimated number of minutes dealing with each accident area. Note that audio-visual materials represented only a small portion of the total items received. Upon receipt of a film, a group viewing time was scheduled, and each film was run at least twice before an audience of no less than five Wyle boating safety researchers. If questions arose during the viewing, the film was stopped and rewound to the point in question and shown again. The only audio material received was accompanied by "copy" (a printed version) and a word count was performed in this case using the method described above.

2.1.4.3 Content Analysis Computations – The total word count values are sums of estimated verbal content across all documents analyzed. It is apparent that this value can be greatly affected by one or two lengthy documents addressing one subject, with the consequence of biasing (increasing) the emphasis given that subject. A relative word count value, however, based on an arithmetic average of the word counts relative to the number of documents analyzed would control for this kind of bias. (The relative values were calculated by dividing the total word count values by the number of documents). Relative content values represent the number of words which the average document addresses for that particular content category. Percentages for word counts were also calculated and indicate the emphasis a particular content category received as compared to the other categories.

2.1.5 Results of Quantitative Content Analysis

The results of the word counts for the three content categories are presented first according to the overall quantities in each category; then according to the distributing geographic regions, and finally according to distributing source agencies. The section is concluded with a series of correlational analyses to determine the extent to which relative verbal content addressing a particular content category is reflected in the fatality rates for the accident type(s) included in that content category. The word count values for all materials received are shown in Table 2.

TABLE 2. WORD COUNT VALUES OF ALL RECEIVED MATERIALS FOR THREE CONTENT CATEGORIES

CLASSIFICATION OF CONTENT	TOTAL WORD COUNT VALUES	RELATIVE WORD COUNT VALUES*	PERCENTAGE FOR WORD COUNTS**
Collision	214,640	809.96	42.4%
Loading Related	73,615	277.79	14.6%
All Others	217,520	820.83	43.0%
TOTAL	505,775	------	100.0%

*Based on 265 documents analyzed.
**Based on the overall total word count values.

The highest word counts occurred for the "All Others" classification (217,520), as would be expected from the larger number of topics included in that group. However, the collision word count was surprisingly high, with 214,640 words: a difference of only 0.6%. Comparatively speaking, the collision category was almost three times greater than the loading related category. This is a particularly interesting finding in light of the fact that there were almost six times as many deaths attributable to loading related accidents as there were deaths from collision accidents in 1976 (922 versus 164 deaths; Reference 5).

Additional analysis was undertaken to identify whether there were differences in the amount of verbal content for the different categories in various regions of the country.* The word count values for this analysis were taken from the materials distributed by the various states and territories, rather than from all the agencies. The results of this analysis are presented in Table 3.

Loading related content was consistently less emphasized in the materials. The percentage was similar for all regions, varying from a low of 11.9% to a high of 16.3% (compare with the overall 14.6% from Table 2). The percent of material related to the collision category ranged from 30.2% to 37.7%, and the "All Others" category ranged from 47.9% to 55.5%; states and territories gave slightly less emphasis to collision related material than was true for all the material as a whole. There were, however, no strong regional differences in the materials analyzed here. Assuming that these are representative of the materials actually distributed in the region, there tends to be considerable uniformity in terms of content for printed educational materials in the various regions. One very likely explanation for this is that the materials selected for use within a given region may be a direct function of availability of printed materials; agencies in effect are distributing what they can get. The word count values for the content categories for each reporting state or territory within the regions are presented in Appendix C.

A comparison of content among the various distributing agencies showed marked differences in emphasis. The word count values and percentages appear in Table 4.

---

*The regions selected for this analysis were specified by the Outdoor Empire Publishing Company. This company prepares and distributes educational materials throughout the country, and their classification scheme seemed well balanced for number of states per region.

TABLE 3. WORD COUNT VALUES AND PERCENTAGES FOR MATERIALS RECEIVED FROM STATES AND TERRITORIES ADDRESSING CONTENT CATEGORIES ACCORDING TO GEOGRAPHICAL REGION

CLASSIFICATION OF CONTENT	GEOGRAPHIC REGION											
	WESTERN		SOUTHEASTERN		NORTHEASTERN		NORTH CENTRAL		VIRGIN ISLANDS		TOTAL	
	F*	%	F	%	F	%	F	%	F	%	F	F/5
Collision Content	13,542	32.1	19,735	36.4	11,452	34.2	11,540	37.7	651	30.2	56,920	11,384.0
Loading Related Content	6,878	16.3	6,910	12.7	3,987	11.9	4,393	14.4	308	14.3	22,476	4,495.2
All Others	21,831	51.7	27,564	50.9	18,027	53.8	14,643	47.9	1,197	55.5	83,262	16,652.4
TOTALS	42,251	100.0	54,209	100.0	33,466	100.0	30,576	100.0	2,156	100.0	--	--

* Frequencies for word counts

TABLE 4. WORD COUNT VALUES AND PERCENTAGES FOR MATERIALS ADDRESSING THREE CONTENT CATEGORIES ACCORDING TO DISTRIBUTING SOURCE AGENCIES

CLASSIFICATION OF CONTENT	DISTRIBUTING SOURCE AGENCIES*									
	STATE		INSURANCE CO.		BOAT MFG.		PRIVATE		FEDERAL	
	F**	%	F	%	F	%	F	%	F	%
Collision Content	56,920	35.0	1,740	19.9	3,040	27.8	69,865	33.9	83,075	70.7
Loading Related Content	22,476	13.8	1,890	21.6	2,374	21.7	40,660	19.8	6,215	5.3
All Others Content	83,262	51.2	5,103	58.4	5,536	50.6	95,330	46.3	28,289	24.1
TOTALS	162,658	100.0	8,733	100.0	10,950	100.0	205,855	100.0	117,579	100.0

*These values include duplicate materials received from several different agencies, but not duplications within a given agency. For example, two copies of a publication may have been received from a federal source agency, but it is represented only once in the values given for that agency. In the case where two identical publications, say, "Federal Requirements for Recreational Boats," were received from two different source agencies (federal and private), the publication is represented in the values given for both source agencies.

**Frequencies for word counts.

Considering some of the more extreme differences, over 70% of the content of federally distributed materials dealt with content belonging in the collision category, while the proportion of loading related content was only 5.3%. The collision category was much smaller for every other type of distributing agency, being represented by 19.9% to 35.0% of the materials; the loading related category was comparatively larger, ranging from 13.8% to 21.7%. Federally distributed materials often dealt with "rules of the road," which were usually extremely lengthy presentations, and they appeared in several different publications. Conversely, loading related materials were much less repetitious in content and did not appear as frequently in the publications. The fact remains, however, that all agencies emphasize collision accidents more than loading related accidents.

Since the individual word count for any given content category does not take into account the overall number of publications selected for distribution by an agency, relative word count was again calculated. The total number of publications distributed by the source agency was divided into the total word count value tabulated for the agency. This calculation provided an estimate of how much material addressed each content category relative to the number of publications distributed by that agency. For example, the relative verbal content for states and territories for collision material was a word count of 580.8 (98 printed documents were divided into the total word count (of 56,920). The results of these calculations are summarized in Table 5.

The outcomes of the relative word count analysis paralleled the previous findings. The "all others" category remained the largest verbal content category (with the exception of the collision content from federal sources). Collision relative word count values for all source groups exceeded the loading related word count values.

2.1.6 Relative Content Compared with State Fatality Rates

A logical question which arises in response to the outcome of the preceding word count analysis concerns the extent to which the actual frequencies of fatal boating accidents are reflected in the content of the materials being made available. It can be reasoned that educational materials emphasizing reduction of collision accidents will be distributed by agencies in areas where there are high numbers of

TABLE 5. ANALYSIS OF WORD COUNT VALUES FOR THREE CONTENT CATEGORIES IN MATERIALS DISTRIBUTED BY DIFFERENT SOURCE AGENCIES

SOURCE AGENCY	TYPE OF DATA	CONTENT CATEGORY		
		COLLISION	LOADING RELATED	"ALL OTHERS"
States and Territories	No. Printed Items Received	98	98	98
	Word Count	56,920	22,476	83,262
	Relative Content	580.8	229.3	849.6
Insurance Companies	No. Printed Items Received	10	10	10
	Word Count	1,740	1,890	5,103
	Relative Content	174.0	189.0	510.3
Boat Manufacturers	No. Printed Items Received	15	15	15
	Word Count	3,040	2,374	5,536
	Relative Content	202.7	158.3	369.1
Private	No. Printed Items Received	109	109	109
	Word Count	69,865	40,660	95,330
	Relative Content	641.0	373.0	874.6
Federal	No. Printed Items Received	33	33	33
	Word Count	83,075	6,215	28,289
	Relative Content	2517.4	188.3	857.2

serious collision accidents, and the same logic should hold true for loading related accidents. However, it was noted in Section 2.1.5 that while loading related accidents are numerous, loading related topics are less frequently discussed. A more precise investigation of this issue was carried out here. The analysis was conducted at the state level because of the accessibility of statistics for verbal content and fatalities.

Specifically, the investigation was conducted to determine the possible association of emphasis on content addressing particular accident types in materials distributed by the various states, and fatality rate attributed to those accident types for the same states. It must be pointed out that this was an exploratory analysis; it was not intended to be a definitive statement about the quality of materials distributed by any state agencies. The analysis was based upon the 26 states that submitted materials. The fatality rates for comparison were then taken from the summary of state fatalities for 1975.*

In order to determine representative fatality rates for states which took into account the number of boats in use in the state, each state fatality rate was "normalized." The formula for the required calculation is given as:

$$\text{fatality rate} = \frac{\text{frequency of fatalities}}{\text{frequency of boats registered}}$$

where

- frequency of fatalities are from the Coast Guard R&D Center BARs for 1975 for a given state (collision accidents and loading related accidents):
- frequency of boats registered in a given state are from the CG-357, 1975 data.

Two separate comparisons were made: collision word count values for individual states were compared with corresponding normalized state fatality rates, and loading-related word count values were compared with corresponding fatality rates. The Pearson r statistic was calculated for each comparison: r for collision content and fatalities was low and not statistically significant ($r = 0.256$, $t = 1.2411$; $t(22) = \pm 2.064$; $p > 0.05$); r for loading related content and fatalities was positive, moderate, and statistically significant at the 0.05 level of probability ($r = 0.563$; $t = 3.26$: $t(22) = \pm 2.064$). Apparently the amount of loading related content in boating materials somewhat reflects the number of loading related fatalities for the states considered. However, without additional supporting information, further interpretation concerning coincidence or intent is impossible. Scattergrams for the respective comparisons are presented in Appendix D. A summary table of information required for the analysis is presented in Appendix E (number of boats registered in the states considered, and collision and loading related fatality rates).

---

*Fatalities were used in the comparison for states rather than general boating accidents because fatalities were more reliably reported: "It was found that the Office of Boating Safety received notification of 95-100% of all annual boating related fatalities but only 4-10% of those accidents that involved injuries or property damage were reported." (Reference 6 , p. 7)

2.1.7 Outcome for Area Two - Format of Boating Safety Materials Received

The materials received represent all major format types for presenting educational messages. These include pamphlets, decals, posters, films, and radio/TV spots. All printed materials (except posters and decals) received were classified as pamphlets.* As would be expected, the majority of materials received were pamphlets, followed by posters and films; there were three educational messages on decals and three radio/TV spots. It is apparent that a great deal of emphasis has been placed on pamphlets for communication of boating information. All source agencies which sent material included pamphlets.

2.1.8 Outcome for Area Three - Methods of Distribution by Source Agencies

Although the form letter sent to the various organizations requested that information about the method of distribution for boating educational materials be provided, in most cases this information was not sent. Of 93 individual packets of materials received, only 39 included the distribution information requested.

---

*From "The American Heritage Dictionary of the English Language," New College Edition, 1975, a pamphlet is defined as, 1) "an unbound printed work, usually with a paper cover" 2) "a short essay or treatise usually on a current topic, published without a binding." A booklet is defined to be: "a small bound book or pamphlet," while a brochure is defined to be "a small pamphlet or booklet." Thus, brochures, booklets, leaflets, and fliers are all considered to be pamphlets or pamphlet forms.

Responding agencies generally reported distribution of materials through TV/radio spots, Coast Guard Auxiliary, Power Squadron, public schools, state fairs, boat shows, boat docks, sporting goods stores, newspapers, and materials mailed to persons on request. For most state level publications, the distribution is carried out primarily at the time of initial registration or registration renewal of the boat.

Insurance companies distribute literature through agents during the sale or maintenance of boat owner insurance. One insurance company reported that they provide educational materials to any boating organization requesting them. Other distribution methods used by the insurance companies include paid advertising space in major boating magazines and in radio trade publications. Four of the companies responding (Aetna, New Hampshire, St. Paul Companies, and State Farm Fire and Casualty) further support educational efforts by providing premium discounts for policy holders who have successfully completed the Power Squadron or Coast Guard Auxiliary course.

Boat manufacturers reported that they distribute their literature primarily at dealers' displays. They also provide owner's manuals with instruction for new boats or canoes. Instructions were reportedly distributed at boat shows and are available upon request from private individuals.

Private publishing organizations and clubs distribute their information in a wide variety of ways. They use water shows, boat show displays, radio/TV spots, newspaper articles, paid newspaper ads, posters, pamphlets, and respond to requests by private individuals. In addition, articles and features dealing with boating safety and boating education are published in boat enthusiast periodicals.

Federal publications are reportedly available through government displays, handouts at booths in boat shows, radio/TV spots, at many government libraries, and upon request from appropriate offices.

Obviously this does not represent the complete picture of methods of distribution on a national scale, but it does suggest major groupings of systems for delivery of educational material (i.e., mass media, formal boating courses, agency visitations, and home reference or study).

2.1.9 Outcome for Area Four - Educational Utility of Materials

Educational utility refers to how the materials received are used for educational purposes. State level education programs using student texts and slides with narration. These programs are sponsored and often instructed by local marine police. Other education methods include special presentations, seminars, workshops, volunteer speakers, film libraries, radio/TV announcements and ETV programs.

There were also some programs being implemented to encourage boaters to take some form of boating instruction. In New York, persons between the ages of 10 and 16 years must pass a written exam and be certified to solo a mechanically propelled boat. The state of Oregon is conducting formal courses in river running, white water canoeing, kayaking and preparation for licensing as a commercial boat pilot.

2.1.10 Outcome for Area Five - Types and Sizes of Boats Addressed

Most literature addressed power boats under 65 feet with the major concentration on boats under 26 feet. References to sailboats mainly involved rules of the road and righting a capsized vessel. Boat size was often discussed in pamphlet sections dealing with boat classification, such as Classes A, 1, 2 and 3. Accident categories were not discussed relevant to boat size except in sections on hunting, fishing, and water skiing (these sections were dealt with only briefly).

2.1.11 Conclusions for Assessment of Boating Safety and Boating Educational Materials

The assessment of materials received from the various organizations in response to the Wyle form letters produced three major observations warranting reiteration.

1. There seems to be an emphasis of educational material that addresses collision accidents. It is likely that this is the result of two things: 1) repetitions for "rules of the road" in the various documents and 2) the abstract nature of content directed towards loading related accidents. Further, loading related content must deal with information relative to each size and type of boat concerned. Note that there is a distinct absence of arbitrary rules to follow for loading related accident

education (e.g., wake condition that may be hazardous for a boater in one size boat may not be hazardous for another boater in a larger boat.)

2. Apparently, there is a heavy dependence upon pamphlets as media for dissemination of educational information. State agencies seem to make use of a greater variety of media types than other source organizations.

3. Four major kinds of systems for delivery of educational materials were reported in use: 1) mass media (electronic and print) 2) formal boating courses such as those offered by the Coast Guard Auxiliary, 3) representatives of boating agencies calling on organizations in the field (visitations) and 4) a limited version of home reference through correspondence courses.

In the next section of this report, a journalistic evaluation is reported where the highest quality printed materials received for Subtask 1 were compared with "state of the art" criteria from Subtask 2.

2.2 Subtask 2 - Assessment of Educational Alternatives from Other Recreational Areas and Selected Traffic Highway Safety Programs; and Journalistic Technical Evaluation of Materials in All Areas

2.2.1 Rationale and Purpose

The purpose of this subtask was to gather information about educational materials and methods in other recreational areas. It was hoped that this subtask would delineate those educational approaches and journalistically successful techniques used in other recreational activities which might be of potential use for boating education. This subtask was not intended to be a comprehensive or inclusive evaluation of all recreational sports or activities. The areas selected for study were chosen (on the basis of similarity to recreational boating (e.g., cost and recreational value). Seven recreational areas were considered:

- Motorcycling, bicycling, mini-biking, etc; including the Motorcycle Safety Foundation.
- Snowmobiles, skiing, winter sports; including the International Snowmobile Industry Association and the National Ski Patrol.
- Sky diving, hang gliding, powered gliders, etc.; including the U.S. Parachute Association.
- Water skiing, rafting, scuba diving, etc.; including the American Water Ski Association.
- All terrain vehicles, campers, dune buggies, etc; including the National All-Terrain Vehicle Association.
- Camping, hunting, fishing, hiking, etc; including the Family Camping Federation of America.
- Others; including the National Safety Council, the U.S. Consumer Product Safety Commission, the National Park Service, the National Fire Protection Association, and Family Safety Magazine.

At the request of the Coast Guard, an effort was made to evaluate aspects of Traffic Highway Safety Education Methods as well.

The information needed for this subtask was organized into two basic categories:

- Sources of information for program planning and for evaluation of the effectiveness of the programs from the other recreational activities.

- Various educational methods, techniques, and strategies which have been or are being used in educational programs for other recreational activities.

2.2.2 Method and Research Design for Assessment

The research design for this subtask involved acquiring sources for information on educational programs, classifying the findings in systematic fashion, and a journalistic evaluation of the content, quality, and strategies of the printed materials.

This design was carried out in four steps. The first step was the compilation of resource agencies and organizations to be contacted for assistance. This list was generated by using published safety literature in the respective recreational industries, by contacting relevant governmental agencies (local, state, and national), and from suggestions received in the course of the study, from various persons responding to the mail request. The complete list of organizations is presented in Appendix F. The second step was a mail request for the necessary information about the educational programs. A copy of the request letter (prepared by C. Stiehl) is presented in Appendix G. A total of 113 organizations, companies, agencies, and individuals were sent the form letter. As a result of a particularly low response to the mail request for materials, step three involved followup interviews with key persons in recreational areas that were considered to be most important to this project (motorcycling and snowmobiling programs). In addition, inquiries were made concerning the highway traffic safety area, also using telephone interviews. A list of persons interviewed is presented in Table 6.

The method used in this follow-up effort utilized traditional interview information gathering techniques. The interviewer identified herself as a research psychologist employed at Wyle Laboratories in Huntsville, Alabama. The project was described as a report of recommendations to be presented to the U.S. Coast Guard concerning educational programs for recreational boating. The respondent was asked if he would be willing to answer some questions and describe his own organization. All respondents agreed to cooperate; however, the extent of that cooperation and the amount of information volunteered varied greatly.

TABLE 6. RESOURCE PERSONS CONTACTED BY TELEPHONE TO OBTAIN INFORMATION ON EDUCATIONAL PROGRAMS IN THE AREAS OF MOTORCYCLING, SNOWMOBILING, AND HIGHWAY TRAFFIC SAFETY

MOTORCYCLING

Dr. Allan Robinson, Director of Education and Training, Motorcycle Safety Foundation, Linthicum, Maryland*

SNOWMOBILING

Catherine Ahern, Manager of Information Service, International Snowmobile Industry Association (ISIA), Washington, DC**

Roy Muth, Director of Technical Services, Snowmobile Safety and Certification Committee, Inc. (SSCC), Washington, DC (affiliated with ISIA)

Larry Nenneman, Division Manager, Marketing/Recreation, John Deere Horicon Works, Horicon, Wisconsin

HIGHWAY TRAFFIC SAFETY

Dwight Fee, Special Assistant to the Director of the Office of Driver and Pedestrian Programs, National Highway Traffic Safety Administration (NHTSA), Washington, DC

Tom Enwright, Deputy Administrator, National Highway Traffic Safety Administration Regional Office, Atlanta, Georgia***

Information Officers in the Departments of Traffic Safety or the Governor's Highway Safety Commission in the following states:

- Sacramento, California
- Tallahassee, Florida
- St. Paul, Minnesota
- Salem, Oregon
- Austin, Texas

*A private, non-profit organization supported by the five leading motorcycle distributors in the U.S.
**A non-profit, open-membership association.
***This is one of 10 regional offices. Washington distributes educational materials and gives technical and financial assistance to states in their individual educational and promotional programs. The regional offices mainly serve the function of intermediaries between national and state/local levels.

While there were several questions which were asked in all interviews, they were conducted in a relatively unstructured fashion, to encourage respondents to bring up issues or problem areas which might be unique to their specific areas and could not be anticipated by a rigid series of questions. The length of these interviews ranged from approximately seven minutes to 20 minutes. Subjects of information which were systematically requested of all respondents were:

- Description of the department or foundation (e.g., lines of authority, structures providing communication between national and state or local levels).
- Identification of procedures for designing programs (choice of educational objectives, e.g., by methodological data analysis).
- Description of how programs are implemented (materials produced in-house or contracted out; media use, etc.).
- Description of assessments of effectiveness of campaigns.

The fourth step was completed in conjunction with the previous subtask dealing exclusively with boating safety materials. This involved a journalistic comparison of the highest quality motorcycling and snowmobiling materials with the best available boating education materials.

2.2.3 Results of Assessment

Approximately 27% of the persons and organizations asked for assistance in the project answered the mail request. Additional unrequested information was received from 33 different sources, generally by referral from a contacted agency. A list of these sources is included in Appendix F. The only areas in which substantial quantities of materials were received were the areas of motorcycling, snowmobiling, and snow skiing. A small sample of materials was also received in the areas of water skiing, camping, parachuting, hunting, fishing, etc. The latter group of materials offered no real contribution to the information provided by the larger group of materials, and consequently has not been detailed in the report.

The materials used for analysis were classified according to three dimensions:

- format or media (e.g., pamphlet, professional journal article or research report, and safety or press release),

- primary emphasis or content (e.g., general safety, promotion of a safety course, etc.),
- intended use (classroom instruction, dissemination to general public, or aimed at specific target audience).

The outcome of the classification is summarized in Table 7.

Telephone interviews with key persons in the motorcycling and snowmobiling areas produced information that was largely supportive of printed materials previously received from the mail requests. As a result, the findings for the interviews were integrated with that information for presentation in this report. The various motorcycle/snowmobile programs and approaches are identified in tabular form in Table 8.

Telephone interviews with key persons in the highway traffic safety area (and two publications: References 7 and 8, suggested during the interviews) produced an overview of the educational program for highway safety. The findings for highway safety programs are presented in tabular form in Table 9 .

The tabulated information in Tables 8 and 9 suggest three general points of possible value for recreational boating education.

1. The most established programs for education were associated with highway traffic safety. The programs offered by the parent national organization utilized most conventional modes of education intervention. It is noteworthy that the National Highway Traffic Safety Administration distributes educational materials of a high quality reflecting an "in house" expertise and professional production assistance. Further, the national agency has developed liaison intermediary offices to coordinate efforts between national and state/local levels.

2. Excellent educational programs are being prepared and conducted with far less data analysis in other recreational areas than for recreational boating. Only a limited amount of data analysis is being undertaken by the Motorcycle Safety Foundation. However, there are plans for a national level repository for motorcycle accident data. There is an attempt on the state level to deal systematically with motorcycle accident and snowmobile accident

TABLE 7. SUMMARY OF EDUCATION MATERIALS OBTAINED FROM MAIL REQUESTS IN THE RECREATIONAL AREAS OF MOTORCYCLING, SNOWMOBILING, AND SNOW SKIING

FORMAT OR MEDIA	EMPHASIS OF CONTENT	INTENDED USE OR AUDIENCE	FREQUENCY OF ITEMS		
			Motorcycling	Snowmobiling	Snow Skiing
Pamphlets, Brochures and Manuals	Safety Tips	General Public	1	2	
	Publicizing a safety course, educational program, or certification program	General Public (or Potential Participants)	2		
		Potential Sponsors	4	1	
	Operator's Manual w/Safety Tips	General Public (Consumer)		1	
	Manual for Safety Course	Classroom Use: Course Participant	2	1	
Professional Journal Articles and Research Reports	Safety, Licensing, Accident Analysis, Etc.	Professionals in Safety Education Field	20	2	2
Safety or Press Releases	Various Aspects of General Safety	General Public	3	6	5

TABLE 8. TABULAR ASSESSMENT OF KEY ASPECTS OF MOTORCYCLE AND SNOWMOBILE EDUCATIONAL PROGRAMS

RECREATIONAL AREA	PURPOSE AND CONTENT OF EDUCATIONAL PROGRAMS	MEDIA AND METHODS USED	ACCIDENT DATA ACQUISITION & ANALYSIS
Motorcycling	• Motorcyclist helment wear • Messages to remind car and motorcycle riders to share the road • Publicize the motorcycle safety course • Tips for safe motorcycle operation • Make available a home study Motorcycle Rider Course including educational materials • Mediate the loan of training motorcycles by manufacturers to dealers sponsoring such a course (Dealer Participation Program) • Provide training to instructors through workshops (Instructor Preparation Program in colleges, universities, and in military services) • Development of knowledge tests (e.g., off-road information needed prior to licensing) • Upgrade operator licensing practices • Support the provision of insurance reductions for safety course graduates	Production of educational materials is contracted out to professional agencies. Mass Media Utilization Television Radio Trade Magazines Pamphlets Decals with Organization Logos Bi-monthly Newsletters Seminars on safe operation and problem areas Complete package of instructional materials including a student textbook, self-tests, and instructor's guide, 16mm films, and filmstrips Courses and home study	No systematic on-going acquisition and analysis of accident data. Some analysis of accident reports and statistics have been performed via MSF-sponsored research contracts. Plans for a national clearinghouse for motorcycle accident data. End-of-course measures for evaluation of graduates of the safety course.
Snowmobiling	• Provide operator training program package for youthful operators • Certify safety programs of states and Canadian provinces for education of youthful operators • Provide safety tips for purchasers of snowmobiles	Pamphlet and film contracted to professional agency	No systematic compilation of statistics (request information from states and provinces by letter). Some limited accident data is available from the National Safety Council, the Consumer Product Safety Commission's NEISS Program, and various state and provincial (Canada) agencies.

TABLE 9. TABULAR ASSESSMENT OF KEY ASPECTS OF HIGHWAY TRAFFIC SAFETY EDUCATIONAL PROGRAMS

PURPOSE AND CONTENT OF EDUCATIONAL PROGRAMS	MEDIA AND METHODS USED	ACCIDENT DATA ACQUISITION & ANALYSIS
Priority Programs* • Safety and energy conservation • Systematic data acquisition, analysis and reporting • The 55-mph national maximum speed limit • Automobile occupant safety (e.g., restraint systems) • Reappraisal of highway safety standards • Campaign against excessive drinking and automobile driving Other Representative Programs: • Seat Belt Campaign • Pedestrian Safety	Materials production includes in-house work, contracts with ad agencies, and work done by the Advertising Council Mass Media Utilization Includes: Television Radio Spots Newspapers - editorials - printed advertisements - hard news reporting Contests Pamphlets 16mm Films Posters and Placards for Display Advertising Specialties Include: Bumper stickers, napkins, key rings, "buckle up" stickers for car rental firms, special message plate for license plate mount for front of car Visitations and Exhibits: Table Top Exhibits State Fair Exhibits Seminars, Lectures, Speaker's Bureau Scripts Mobile Education Units (station wagon with movies and slide shows) Games (e.g., Texas Traffic Safety Ranger Kit for 4th Graders) Mailing Information Kits to Select Groups	National data system (National Center for Statistical Analysis) currently being organized. Will include data on drivers, pedestrians, vehicles, collision types, injuries, environmental factors, and exposure. Will involve: a) assembling existing state and local records, and b) on-site investigation of a representative sample of accidents by trained professionals.

---

*Descriptions of highway safety programs have been limited to major efforts. A complete description is presented in Reference 7.

data. No snowmobile organization contacted reported any acquisition of accident statistics other than by individual states/provinces, the National Safety Council, and the Consumer Product Safety Commission.

3. There are educational problems and educational resources shared by the various recreational areas, highway traffic safety, and recreational boating. All education areas involve both operator skills and operator judgment. The resources available reflect the "state of the art" for campaign approaches to educational innovation.

2.2.4 Method and Research Design for Journalistic Technical Evaluation of Boating Educational Materials

An evaluation of the printed boating instructional materials (primarily pamphlets) was made to assess how the boating materials compared with the state of the art (in journalistic standards) for instructional materials. This evaluation was conducted in two stages. Stage one was the selection of materials for comparison; stage two was the actual technical evaluation. First, three Wyle research personnel qualified as in-depth boating accident investigators selected the best overall instructional pamphlets for boating from the general group of educational pamphlets provided in Subtask 1. These judges were also asked to select the best instructional pamphlets from the motorcycling and snowmobiling recreational areas.

The selections by the judges were to be based upon how realistically and appropriately the pamphlet dealt with the recreational situations, their effectiveness in addressing recreational boaters (or motorcycle and snowmobile enthusiasts) in terms of appropriate level of sophistication, and thoroughness of subject coverage without excessive detail. The instructions given to the judges are specific and are presented in Appendix H. Evaluations for the first stage were conducted in the following way. The judges scanned the materials, made their selections, assigned choice preference, and then wrote out a brief reason for their selection and priority assignment. After each judge completed his part in the task, all chosen pamphlet titles were recorded, and the materials were then refiled for the next judge. In all, two pamphlets from each major source (federal, state, private publishers, insurance companies, and boat manufacturers) were to be selected by each judge along with four items of motorcycling and snowmobiling materials.

It was the opinion of the principal investigator that the motorcycle and snowmobile materials offered the most progressive materials for instructional purposes.

One judge did not complete the selection of materials from the federal agency category, as he was called away from the task and could not return. Since there were a large number of similar materials in the federal agency group, the loss of the two choices for this category was minimal. Further the two judges selecting federal agency materials duplicated their selections for one choice.

The second stage for the evaluation of the boating materials involved technical assessment of all chosen materials by three professional mass media consultants with backgrounds that included training in graphics. Two are members of the School of Radio and Television Faculty at Ohio University (J. Berman and J. Murray), one was a member of the School of Journalism Faculty (T. Dunlap). The intent of this evaluation was to subject the best of the boating pamphlets to expert opinion having the highest standards for the way in which the educational content could be presented. A donation of $200 was given to a scholarship fund at Ohio University for their assistance. The consultants met as a panel to evaluate the materials in one meeting. The consultants were asked to review the materials in any order they wished and to use four judgmental areas in their evaluations. They were told to reach an agreement on their opinions and judgments. The instructions specified for the task are presented in Appendix I. The judgmental areas offered by Wyle were originally specified as options which the consultant panel was free to alter since they were the experts. Original judgmental areas were used and are as follow:

- quality of printing, selection of type font, artistic and practical use of color, appropriateness of artwork,
- layout of the pamphlets including location of printing and the associated photographs and artwork,
- quality of paper used, and
- appropriateness of verbal style (e.g., level of difficulty).

2.2.5 Results of Selection of Boating Materials

Twenty-eight different pamphlets, including duplications, were selected by the Wyle judges as "preferred" materials from all three recreational areas. These materials are presented by title and by the frequency with which they were selected in Table 10.

TABLE 10. SELECTED MATERIALS BY TITLE AND FREQUENCY OF PREFERENCE

Title of Selected Materials	Frequency With Which Materials Were Preferred
Make Sure/Make Shore	2
Connecticut Better Boating	2
Skipper's Outboard Special	2
Boating Skills and Seamanship	1
USPS Boating Course	1
Almost Everything You Wanted to Know About Boating But Were Ashamed to Ask	1
Federal Requirements for Recreational Boats	2
Boating Safety	1
Safe Boating Guide-Safeco	3
ABC's of California Boating Law	1
Basic Canoeing	1
Safe Boat Driving for Water Skiing	1
Slickcraft Owners' Manual	2
MFG Boat Owners' Manual	2
Safe Skippers Ahoy	1
Minnesota Boat and Water Safety	1
A Pocket Guide to Cold Water Survival	1
Adventure Afloat	1
Basic Outboard Boating	1
State Farm Audio Copy	1
Snowmobiler's Safety Handbook	2
Play Safe with Snowmobiles for More Winter Fun	3
Beginning Rider Course	2
Motorcycle Rider Course	2
Three State Snowmobile Economic and Preference Survey	1
Riding Tips for Motorcyclists	1
Community Motorcycle Safety Education Support	1

These classifications and the individual comments are presented in Appendix J. It is apparent from the frequencies of the various comments that the Wyle judges were particularly pleased with instruction for novice boaters. The major concentration of comments was in two groups: fifteen comments (38% of

The comments given) specified the reason for the selection as being "good to adequate basic coverage for beginning boaters." The next most frequently occurring kind of comment (14 comments given) pertained to the quality of coverage of material suitable for "novice" or "experienced boaters."

2.2.6 Results of Technical Journalistic Evaluation of Boating Educational Materials

A statement for the results of the technical journalistic evaluation was prepared by the panel of three consultants from Ohio University. The statement reflects consensus opinion held by the panel members for each of the material evaluated. With the exception of minor editing, their statement is reproduced for this document as it was received.

> *INTRODUCTION*
>
> *The following remarks are of course made without full knowledge of facilities and resources available to the producing agent. [The intent of the remarks are]...to assist in the production of useful and attractive materials.*
>
> *Perhaps the two most important aspects of pamphlet production for the present task are a sense of unity and organization throughout - both in printed content and graphic support - and the presentation of a convenient quantity of material. Many of these pamphlets fail on one or both of these counts by poor planning, cluttered and unattractive layout, lack of consistency and incompatibility of content and illustrations, poorly selected type font, pictorial size and placement and other similar factors. Many are simply unattractive, externally and internally. It is apparent in some that the design and/or execution was the work of several persons [who did not know how to] coordinate the total look of the pamphlet.*
>
> *Often there is an overabundance of information. Try doing less better...: perhaps three smaller pamphlets on three subjects. This suggestion is consistent with both convenience [for use of the pamphlet, and facilitation of learning].*

GENERAL COMMENTS ON COMPARISON PAMPHLETS (MOTORCYCLES AND SNOWMOBILES)

[Overall], the best technical...impressions were left by several of the motorcycle brochures. They are attractive, coherent, and are pleasing in format; they are unified internally through fine layout, type font and visual support. Paper stock and half-tone reproduction is excellent and the overall "feel" is one of careful planning and execution.

In those pamphlets where "point of view" is present (wherein the reader is placed precisely in the position of a participant in the illustrated situation) the motorcycle pamphlets again do the finest job. This may seem a small point, but in recreating potential accident scenarios the participants' point of view is critical to understanding appropriate action to be taken; a poorly presented point of view may not accurately depict the cyclist's (boater's) position and cause some degree of disorientation as well.

The overall appeal of the motorcycle/snowmobile pamphlets is a youthful one in appearance and content style. [However], the Snowmobiler's Safety Handbook is "generic," in that the illustrations do not distinguish the participant by a particular age. The Play Safe With Snowmobiles is a badly cluttered, visually ambiguous, seemingly random pamphlet. On closer examination, it can be noted that this pamphlet is in fact produced in Canada which might account for the difference in style.

GENERAL COMMENTS ON BOATING EDUCATIONAL PAMPHLETS

The boating pamphlets vary widely in format, quality, expenditure, appeal and usefulness. Many simply do not have the look of recreational pamphlets; some are too formal to attract a recreation-oriented person.

The most useful approach in verbal style is a simple, direct one [i.e., participatory]. A number of pamphlets are condescending verbally and contain unnecessarily childish illustrations.

It seems that the most attention was paid to the paper stock in the boating materials and the quality was generally very good.

The best overall boating pamphlet/booklet is the USCGA's *__Boating Skills and Seamanship__*. *In all categories it comes closest to a well planned and coordinated presentation. One gets from it what one expects. Many of the other pamphlets, through lack of good technical planning, create incorrect expectations of the true content. As a text [the USCGA publication] is well done.*

__SPECIFIC COMMENTS ON ALL MATERIALS__

Specific comments are presented in Table 11.

TABLE 11. SPECIFIC JOURNALISTIC COMMENTS FOR ALL EVALUATED MATERIALS

PAMPHLET	ITEM
Motorcycle Rider Course	Contemporary and well coordinated
	Pre-punched edge suggests permanency and serial-ness
	Copy zig-zags around illustrations, affects readability greatly
Community Motorcycle Safety Education Support	Low budget, but well done
Riding Tips for the Motorcyclist	"Point of view" generally well handled
Beginning Rider Course	Layout done in spots as if one page wide instead of two
Play Safe: Snowmobiles	Too many photo sizes
Snowmobile's Safety Handbook	Paper opacity bad: ink comes through
Section 5: Compass and Chart Familiarity	Paper stock too thin
Safe Skippers, Ahoy	Too much color for size. Fold-out format not good
	Cover color overpowers a good half-tone
Boating and Water Safety	Cut lines under pictures good, well used
	Tint blocks used well
	Art work good
Almost Everything You Ever Wanted...	Style too condescending
Connecticut Better Boating	Excess of color
	Excess of material per page
Safe Boat Driving for Water Skiing	Needs more white space and margins
MFG Boat Owner's Manual	Small paragraph
USCGA Skipper's Outboard Special	Art work condescending
Adventure Afloat	Bad photography
	Photo-reduced tables hard to read
Basic Outboard Boating	Type too big
	Art work placed poorly

TABLE 11. (concluded)

PAMPHLET	ITEM
ABCs of California Boating Law	Poor title Glossary good Chart layout inconsistent
Make Sure Make Shore (NY State)	Too much contrast Drawing styles differ Captions needed
USCG 473 A Pocket Guide to Cold Water Survival	Pictures too interruptive of content
AMF Slickcraft Owner's Manual	Clean, bold, unified, well planned for boat stowing
Make Sure Make Shore	Pictures good but tint-blocks detract Color ruins otherwise good quality print/type "Rivers of space" in lines lack continuity
Florida Boating Safety New Federal Requirements	Too many different type fonts All capital letters make it difficult to read
Boating Safety	Size too small - church pew booklet in appearance

2.3 Subtask 3 - Review of Educational Methods and Audio-Visual Techniques for Boater Educational Programs

2.3.1 Introduction and Purpose

This section is concerned with identifying educational methods that are applicable to instruction of recreational boaters. The methods employed in contemporary instruction have become sufficiently developed that a reasonably well defined group of techniques have evolved. Although most sophisticated instructional programs employ combinations of methods and support materials, parsimony requires their discussion in separate classifications.

The specific purposes of this subtask are:

- To identify the major educational methods having potential for programs directed to recreational boaters.
- To identify the major audio-visual support materials to be used in conjunction with the educational methods.
- To specify advantages and limitation of each major educational method with respect to practical considerations for use of the methods.*

In a review of training methods for industry, Bass and Vaughan (Reference 9) have listed the basic instructional methods available for education and training. Seven of these methods offer potential for the education of recreational boaters:

1) Lecture
2) Conference or Group Discussion
3) Cast Study
4) Role Playing
5) Simulation or Structured Experience
6) Games
7) Programmed Instruction.

---

*The practical considerations of interest for this project were: size of audience, levels of sophistication of the audience, amount of prior boating experience of audience, complexity of message content (amount of information given in the message), cost and budget, and facilities available.

The intent of this section is to make accessible to potential users guidelines and resource material for persons interested in instruction of recreational boaters. It is assumed that the seven methods encompass the major instructional possibilities for any intellectual level of boater, or any given set of training objectives (involving either skill development or information acquisition).

This information should make clear the choice of educational methods and support media to use at any given time (or for any given program). At the very least, it should narrow the choices to a few equally acceptable alternatives. Use of this information is, of course, dependent upon prior determination of the parameters of the various educational situations in which the methods and materials are to be used. It is apparent that the use of supporting media can stimulate discussion in formal classes, clarify abstract concepts, and illustrate specific points. In fact, any contemporary plan for an educational program should involve the consideration of an array of media support.

2.3.2 Presentation of Educational Method Alternatives

The major educational methods, and their advantages and limitations relative to the practical considerations of educational alternatives are presented in tabular form in Table 12.

TABLE 12. EDUCATIONAL METHODS AVAILABLE FOR USE IN BOATING EDUCATIONAL PROGRAMS

1. LECTURE METHODS: (Oral, one-way transmission of information [except for questions and answers] from an instructor to a group of persons.)

ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Can reach large audience(s) • Flexible, can be accommodated to meet particular group's needs; can be changed, or emphasis altered, during presentation. • Economical in terms of preparation time and financially, for reaching large audience. • Useful as a framework into which other media and methods can be incorporated.	• Mostly one-way communication, minimizing active participation and involvement by audience; allowing little chance for practice, reinforcement, or feedback; no tailoring of content to meet individual needs. • Success is dependent on having a skilled lecturer. • Generally not suitable for children unless used in conjunction with extensive visual media support. • Some resistance may be found in persons who are predisposed to dislike the lecture situation. • Not visually stimulating for listeners without additional media aid; tends to be a visually static method. • Listener is required to participate passively rather than actively in the learning process.	• More useful for transmitting facts than for promoting attitudinal or behavioral change. • More suited for local than national preparation.

TABLE 12. EDUCATIONAL METHODS AVAILABLE FOR USE IN BOATING EDUCATIONAL PROGRAMS (continued)

2. GROUP DISCUSSION METHODS: (Purposeful two-way communication among a group of active participants.)		
ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Encourages active participation (which facilitates learning and retention). • Provides for interaction among participants. • Provides feedback to participants. • May be used in conjunction with other methods (e.g., lecture, role playing). • Allows for individual attention to be given to participants. • Flexible according to specific interests and needs of participants. • Can easily include viewing of "visual" materials to be passed around among members because of small group size. • Economical in terms of preparation time and cost. • Can be fairly lengthy if participants are enjoying it or are involved in the intense interchange of information and opinions.	• Aggressive individuals may dominate the discussion with nonproductive talk. • Participants may have difficulty expressing themselves clearly. • Arguments may disrupt or side-track the discussion. • Quality is dependent on participants and on a skilled group leader.	• Preferable to lecture when material presented needs much clarification and amplification. • Lecture to a large audience may be followed by several smaller group discussions. • Leader should be: - prepared to deal with variety of questions which might not occur in structured lecture situation (therefore preparation time may actually be longer than for lecture) - attentive to individuals who need encouragement to contribute - skillful in keeping discussion productive for all members of the group, and keeping the group under control - able to summarize and clarify periodically • Heterogeneous group in terms of boating knowledge and experience is usually desirable. • Topic should be limited so that a "main track" helps maintain structure and logical progression of thought. • Discussion should be closed when time or diminished productiveness dictate. A summarization by the leader to provide perspective is recommended. • More suited for preparation on the local than the national level.

TABLE 12. EDUCATIONAL METHODS AVAILABLE FOR USE IN BOATING EDUCATIONAL PROGRAMS (continued)

3. CASE STUDY METHODS: (Participants examine actual problem situations and work out solution themselves; i.e., actual boating accident case histories are presented for student analysis.)		
ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Has "real life" credibility because cases are taken from actual incidents which have occurred. • Can be integrated into many other types of presentation (e.g., lecture, film, pamphlet). • Encourages active participation (which facilitates learning and retention). • Promotes flexibility on the part of trainees by showing them there is no single correct solution in most cases (however, there are best solutions).	• Invites sensationalization by the speaker, which may distract from the intended purpose (i.e., identifying cause of accident and alternative operator or passenger behaviors). • Children may be frightened by "stories" of injuries or deaths and come to fear boating. • Discomfort caused by unpleasant aspects of accident cases may actually inhibit compliance, if trainee disassociates himself altogether from the consequences of non-compliance (obviously dependent upon degree of sensationalization).	• May incorporate basic method of role playing, by personalized presentation of the accident situation (i.e., using participant's name in depicting the scenario). • Suitable for preparation on the local level; however, a series of case studies could be prepared from BARs for nationwide distribution, with selection of relevant cases for specific groups (e.g., by age) and regions, to enhance identification in the audience. • Case study should be supported with statistics to demonstrate that this is not an isolated incident, but a typical example. • Case presentation may be followed by questions such as: - What is going on? - Why did it occur? - What preventive measures could have been taken? - What can be done now?

TABLE 12. EDUCATIONAL METHODS AVAILABLE FOR USE IN BOATING EDUCATIONAL PROGRAMS (continued)

4. ROLE PLAYING METHODS: (Participants act out the role of themselves or another person in a hypothetical situation; e.g., child may pretend he is a parent urging his children to wear PFDs.)

ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Requires active participation (which facilitates learning and retention). • Puts participant in position where he sees "the other side" of issues and thus enhances understanding and promotes new perception of situations. • Provides continuous feedback on his responses. • Trains in emotional control. • Can be conducted in almost any physical setting or facility.	• Must be directed by trained experts who are also skilled in interpersonal communication; harmful, incorrect or non-compliant responses may be developed by participants if poorly conducted. • Some people are inhibited or regard the role playing situations as childish, and may refuse to participate. • Individuals may overdramatize, calling attention to the method rather than the purpose; feedback may involve reinforcement for the "acting" rather than for insight into the problem.	• Particularly effective in situations involving strong interpersonal conflict. • Person who plays a particular role tends to shift his own opinion in the direction of that role. • Emphasizes emotional feelings and use of imagination. • Must be closely supervised to avoid the possibility of confrontation between participants which could damage their relationship or the learning situation. • The use of videotape is a helpful adjunct to allow for self-analysis after role playing sessions. • A set of videotapes may be prepared in advance, using trained actors to present a problem situation; this may serve as an introduction to subsequent live role playing of the "solution."

TABLE 12. EDUCATIONAL METHODS AVAILABLE FOR USE IN BOATING EDUCATIONAL PROGRAMS (continued)

5. SIMULATION OR STRUCTURED EXPERIENCE METHODS: (Participants must solve a staged or restructured problem; e.g., a boating accident situation is recreated under controlled conditions, to which participant trainees must react.)

ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Requires active participation (which facilitates learning and retention). • Supplies feedback to participant. • Potential for development of program-advocated routine response patterns to a crisis situation by participants. • Advocated behavior and essential elements of the "crisis situation" can be isolated; the distracting circumstances which could obscure the issue in a real-life situation can be removed or controlled.	• Trained and skilled supervisor is necessary; if not carefully produced by experts, may actually involve risk to participants. • Expensive and time-consuming to conduct. • Limited to individual or small group participation. • May be ineffective if realistic situation is not achieved. • May install false sense of security for actual real-life incidents. • Requires conduct at special on-site facility.	

TABLE 12. EDUCATIONAL METHODS AVAILABLE FOR USE IN BOATING EDUCATIONAL PROGRAMS (continued)

6. GAME METHODS: (Participants engage in a structured competition exercise that simulates the response advocated by the educational program.)

ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Requires active participation (which facilitates learning and retention). • Usually supplies ongoing feedback. • Enjoyable to participants. • Portable and thus widely usable. • Telescopes time and events. • No supervisor or trainer necessary if structured beforehand (although useful in some cases for prompting discussion).	• May be rejected by adults as childish. • Most games require cooperation of an absolute and limited number of persons. • High involvement in the game playing may preclude reflection about basic principles and critique of play. • Usually requires thorough planning on the part of trainers; is difficult to do spontaneously.	• Should emphasize skill and a basic "seamanship" knowledge rather than chance. • Involves a form of simulation, with application of rules and skills as well as teaching those rules. • Possible alternative educational method for use with children while their parents are engaged in one of the other educational methods, e.g., a lecture. • A game complex enough to be truly instructive and interesting at the same time may be difficult to design and should be created by professionals.

TABLE 12. EDUCATIONAL METHODS AVAILABLE FOR USE IN BOATING EDUCATIONAL PROGRAMS (concluded)

7. PROGRAMMED INSTRUCTION METHODS: (Participants work individually on prepared educational materials that provide automatic or self-instruction.)

ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Requires active participation (which facilitates learning and retention). • No instructor necessary; ideal for home study. • Individual can proceed at his own speed and convenience. • No embarrassment is caused by mistakes (as may be the case for group learning methods). • Provides immediate feedback to reinforce correct answers. • Provides standardization and uniformity of presentation. • Has proven to be highly effective in terms of speed of learning and amount of information retained. • Organization of material is carefully planned, tested, and, if necessary, revised for optimal effectiveness.	• Requires vigorous preparation well in advance of actual use. • Printed materials to be used may exceed cost benefit unless programs are coordinated with other methods. • Dependent upon personal motivation of trainees. • Computerized packages: - programs may be expensive and time-consuming to generate - requires use of machines which some individuals may have trouble operating - equipment expensive and not easily accessible • No flexibility in elaboration of individual problems or questions.	• May vary in complexity from a newspaper insert with questions and answers to computerized packages for use with a self-study machine with videotapes. • Can be developed in conjunction with pocket-sized programmable calculators; precisely planned problems (frames) in Coast Guard education programs could be pre-programmed in the calculator and could include feedback for various answers/solutions given by learners. • Most effective with factual material that can be structured part by part and arranged in logical sequences. • May be used in conjunction with other methods; e.g., by supplying homework and exercises to supplement classroom instruction. • Can be adapted for distribution using more media methods.

2.3.3 Use of Audio-Visual Support Media

An assortment of audio-visual media are also available which may be used to support the presentation of educational materials and methods. There is usually more freedom of choice where the audio-visual support media are concerned than for the selection of the basic method for a given program, because media serve the supporting role. However, media should be chosen with as much care as the educational method. If overused or misused, media will detract from the program. For this reason, an additional set of guidelines has been established, providing a systematic approach to deciding on the use of audio-visual support. The following six steps are intended to help persons involved with recreational boater education identify, in detail, just what their media needs are.

Step 1 - Prepare a statement of purpose for the intended content of the medium. Base the statement on the following questions:

- Is the content to provide variety or entertainment?
- Is it to provide feedback (e.g., in a role-playing situation)?
- Is it to evaluate an event?
- Is it to demonstrate procedures to be followed in a certain situation?
- Is it to simplify a complex idea?
- Is it expected to comprise a complete entity in itself (e.g., as a self-study program)?

Step 2 - Prepare a storyboard. For the visual media, a "storyboard" or comic-strip like series of pictures is helpful for designing the basic message. The storyboard requires no artistic abilities--"stick figures" can serve the purpose of itemizing, in visual form, the basic elements available for the design of the message. The storyboard will also help to indicate which medium will be best for conveying the message. For instance, if it becomes apparent that certain elements are difficult to draw into the storyboard because they require "motion," then obviously Super 8 or 16mm film or videotape will need to be used. If the storyboard consists of a series of pictures which seem to tell the story on their own, then perhaps a 35mm slide show is appropriate. If only one or two pictures are needed to complete the basic idea conveyed in the storyboard, then perhaps large lecture posters will suffice.

Step 3 - Consider the costs and preparation time. Naturally, decisions as to which medium will be used to supplement a lecture must be determined, in part, by the available budget. Although the storyboard may suggest that videotape would be the best medium for use, the designer of the message may have to compromise. Certainly a $3,000 videotape set-up is not justified when the message can be conveyed using a $200 35mm slide projector recorder with little loss in instructional value. The tradeoffs for these kinds of decisions require careful analysis.

Also, the designer of the message must consider the preparation time required to create the message. Even a fairly simple visual poster for lecture support may require hours to prepare. If several posters are needed for a single lecture, it may be more economical (in time) to shoot a series of 35mm slides which illustrate the same points. Although there is the usual delay for processing of the slides, the lecturer's preparation time is reduced and more time can be spent on the preparation of the lecture script.

Step 4 - Design the actual message. Once the storyboard is drawn and the medium selected, the message is planned. Care is essential in order to avoid waste in materials and time. It is much easier, and more inexpensive, to design a film on paper before shooting than it is to shoot a film and find out later that important scenes were overlooked, and that the finished film doesn't make sense to the viewer. Advance preparation is the key to well-designed and effective media support. As a general rule, try to keep support materials simple, and remember that they should not compete with the verbal messages being presented by the lecturer.

Step 5 - Produce the support material. This involves carrying out the message design, by drawing the poster, shooting the film, recording the music, editing the audio tape, and so forth. Step-by-step methods for producing audio-visual materials are available in the books and references listed in this project. They have been written by professionals, and have been selected specifically because of their ability to prepare the reader with the information necessary to create media support material.

Step 6 - Integrate the support material into the educational format. Once produced, the audio-visual material must be integrated into the presentation for which it was intended. It must be suited to the topic in hand, used at the appropriate moment, and be preceded by an introduction as well as followed by a discussion or a summary. Keep in mind that support material should augment an educational method rather than dominate it.* Even a well-prepared support system may detract from a presentation if poorly used. Clumsy use will always interrupt the presentation. Super 8 or 16mm films must be smoothly integrated into a group discussion session or lecture. Attention of an audience will be divided if they must wait five minutes while the lecturer moves the screen to the center of the stage, threads the projector, searches for an extension cord, pulls the shades, turns out the lights, focuses the projector, and adjusts the sound level. The instructor needs to assure that 35mm slides are positioned correctly and ordered, that everyone will be able to read materials from the back of the room, and that those sitting next to the film projector will not be annoyed by its sound. Attention to such details is the instructor's best assurance for successful presentation of his material. Rehearsal of the presentation is the essential key to identifying these details.

Media support alternatives for educational programs are presented in tabular form in Table 13. As in the presentation of educational methods, the advantages and limitations of each medium are identified according to practical considerations for use.

---

*The exceptional case, where audio-visuals are used as an integrated self-sufficient system (i.e., programmed instruction), no longer involves the media as a support system. Instead, the media comprise the whole package. Information concerning the use of audio-visuals for programmed instruction is included in Table 12.

TABLE 13. AUDIO-VISUAL SUPPORT MEDIA FOR EDUCATIONAL METHODS

1. CHALKBOARD		
ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Useful to outline a lecture, emphasize key points in presentation, present simple drawings, and present backup statistics that are too tedious for oral presentation.* • Inexpensive and widely available in most learning facilities.	• Overuse during lecture detracts from presentation. • Illegible and/or slow handwriting on the part of the lecturer can render it useless. • May evoke unpleasant associations of formal schooling in some persons. • Usually not very dynamic.	• Nominal cost • When possible, prepare chalkboard prior to the lecture and cover it until the appropriate moment. • Lecturer should be careful not to address the board instead of the audience.

*Caution: If extensive statistics are to be recorded by audience without discussion, make up "hand out" copies of the statistics for distribution to class.

TABLE 13. AUDIO-VISUAL SUPPORT MEDIA FOR EDUCATIONAL METHODS (continued)

2. LECTURE POSTERS		
ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• As lecture aid: - useful in supplementing oral presentation with photographs or drawings, outlining the lecture, or to explain terminology - time saving for repeated lectures or group presentations because reusable - may serve as memory aid to lecturer, eliminating need for notes - increase standardization of lecture material and structure of the lecture - are prepared in advance, and so do not take up lecture time, as chalkboard use may • If well done, can be visually attractive. • Can be used independently to present information to the public (multiple uses). • Relatively inexpensive; easily portable, can be used outdoors. • Can be placed at marinas and docks where immediate impact increases effectiveness.	• If quality construction materials are not used, may warp and deteriorate. • Suitable easel or stand required for professional presentation. • Clumsy handling will disrupt lecture.	• Cost will vary from a few dollars for supplies, to perhaps $25 for preparation by a professional artist. • Most effective to present a single concept per poster. • Should be simple and aesthetically interesting. • Should be carefully organized before lecture to avoid confusion during the presentation. • Show the poster, then cover it when finished so it will not divide attention of audience.

TABLE 13. AUDIO-VISUAL SUPPORT MEDIA FOR EDUCATIONAL METHODS (continued)

3. OVERHEAD TRANSPARENCIES		
ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• May incorporate contemporary and spontaneous material (e.g., magazine pictures, graphs from publications). • May serve as memory aid to lecturer. • May be manipulated during the lecture by drawing with felt-tip pen. • Overlays of several transparencies can be used to "build up" a presentation by progressively superimposing images over each other.	• Scratches, fingerprints, or irregularities in the artwork are magnified and easily create a sloppy product. • Overhead projector must be placed near front of the room, so the machine may block the view of some audience members. • Overhead projectors are less common at most teaching facilities than are slide projectors and film projectors.	• Cost of basic overhead projector ranges from $100 to $200. Cost of creating transparencies is minimal. • Supplies for creative overhead transparencies are becoming readily available at photo-reproduction outlets. • Single concept presentations are most effective. • Should be carefully organized before lecture to avoid confusion during presentation. • If the advantages of overlay and/or the possibility of drawing on the image during the presentation are not needed, the use of 35 mm slides is recommended.

TABLE 13. AUDIO-VISUAL SUPPORT MEDIA FOR EDUCATIONAL METHODS (continued)

4. 35 MM SLIDE SHOWS

ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Can be used with self-instructional slide-unit machine. • Room need not be darkened totally. • Convenient and portable. • Easy to operate even by amateurs. • May serve as memory aid for lecturer. • Smooth, nondisruptive presentation (particularly when used with remote control changer). • Slide projector located in rear of room, out of way, requiring no attendance (when remote control available). • Can be rearranged or interchanged for different lectures. • If a question arises concerning a previous point, particular slides can easily be retrieved (assuming a numbered list of slides has been prepared). • May be used in conjunction with a reel-to-reel or cassette tape machine providing narration, music, and, with proper equipment, automatic change of slides by means of silent tones. This assures a standardized program. • If professionally prepared slide shows are used, the presentation can easily be "tagged" by local agency.	• Use can be restricted by need for electricity.	• Slide projectors range in cost from $80 to $250. More elaborate equipment including provision for automatic slide change may cost over $500. Special "dissolve units" which link two projectors for special effects are also available. • Slides can be prepared at very low cost (unless professional, commercial artwork is involved). • Black slides may be inserted at specific places to allow for lecture or discussion without distraction (i.e., lighted screen). (Care should be taken not to leave slides on the screen when they are not pertinent to the lecture). • "Carousel" projectors are recommended for ease of loading and checking slide. • It is recommended that slide presentations prepared professionally by the Coast Guard by "localized" by insertion of local slides into specific places.

TABLE 13. AUDIO-VISUAL SUPPORT MEDIA FOR EDUCATIONAL METHODS (continued)

5. AUDIO TAPE PRODUCTION		
ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Highly portable versions available. • Flexible in terms of allowing selective editing (i.e., erasing unproductive segments). • Tape is reusable. • Can bring remote site information into classroom.	• Less compelling than live, in-person presentations because many non-verbal cues are lost. • Sound quality easily suffers when recordings are made in less than optimal surroundings. • Long presentations require visual support of some type to keep attention from wandering.	• Small, reasonable quality cassette machine may cost between $50 and $100. Reel-to-reel range is $200 to $1000. • May be used to interview an expert who is not obtainable for scheduled lecture; or to obtain narrative description of boating accidents. Useful in conjunction with visual media, e.g., 35 mm slides, to illustrate narration. • Useful for programmed self-instruction where individual must start and stop the machine repeatedly. • Useful for taping lectures and group discussions for later evaluation. • Reel-to-reel has advantage over cassette because tape can be easily cut and spliced in editing process (e.g., enumeration of accident causes might be interspersed with excerpts from interviews with local boaters who have been involved in such accidents). • Lectures may be recorded for the benefit of persons unable to attend, or for later reference by attendants; or as examples for other speakers.

TABLE 13. AUDIO-VISUAL SUPPORT MEDIA FOR EDUCATIONAL METHODS (continued)

6. SUPER 8 MM FILM		
ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Camera is lightweight and portable; easy to load and operate. • Projector is lightweight and portable. • Can be used to illustrate procedures involving motion (e.g., life-saving techniques, or effects of speed on hull response).	• Requires darkened room for showing. • Film is subject to wear and breakage from repeated showings. • Newer Super 8 mm cameras allow recording of sound track, but sound quality is not high. • Film cannot be reused (only re-shown) as can magnetic audio and video tape.	• Cost may range from $50 to $1800 with additional equipment available for editing. Film cartridge costs approximately $6 (including processing) for 2-1/2 minutes of color film. • Particularly useful at the local level because of reasonable cost and convenience. Could be used to provide brief "guided tours" of local lake areas; or to localize Coast Guard prepared lectures. • Super 8 cameras frequently owned by individuals, suggest the encouragement of making some short, single-topic educational "movies" to be presented at class meetings e.g., U.S. Power Squadron Course. The educational benefit lies primarily in the selective use of such films, even if they are not of professional quality. • Useful for presenting staged dramatizations of case studies or setting up basic role playing situations. • Rear-screen projectors are available for presentation.

TABLE 13. AUDIO-VISUAL SUPPORT MEDIA FOR EDUCATIONAL METHODS (continued)

7. 16 MM FILM		
ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Very persuasive medium if well made. It can visualize specific experiences, present cause-effect relationships, condense events, use freeze-frames to call attention to information, can use motion to demonstrate complex activities, use sound to reinforce visual presentation, use animation to simplify, can superimpose images, use split screen to show two actions simultaneously, and use close-ups for emphasis. • It can make use of the most valuable information available anywhere, and can be edited to assure efficient organization of subject matter.	• Expensive; only professional production is acceptable. • Does not provide interaction between instructor and audience; long films risk loss of audience attention after showing. • Film is subject to wear and breakage from repeated showing. • Requires 16 mm projector, which may not be available to local groups. • Showing requires some effort, in terms of threading, rewinding, providing equipment; and short films may not be regarded as being worth the effort.	• 16 mm camera costs a minimum of $700; but can often be rented from educational supply houses, universities, or libraries for a reasonable daily rate. Three minutes of color film (including processing) is approximately $25. Editing facilities may cost close to $100. A 10 minute professionally made film may cost over $10,000. • Any one film should not try to cover a large amount of material; single concept is preferable. • It is recommended that a 16 mm film be accompanied by a set of 35 mm slides made from "key scenes" in the film, to be used for review and summarization at a subsequent meeting. An accompanying pamphlet using some of the same photographs including discussion questions is also recommended. • Still pictures from the film may be used in boating safety pamphlets. This increases cost/benefit ratio and also provides continuity for an overall educational program. • To facilitate showing, several short films may be grouped together and distributed on the same reel. The projector may be stopped between films to allow discussion.

TABLE 13. AUDIO-VISUAL SUPPORT MEDIA FOR EDUCATIONAL METHODS (continued)

7. 16 MM FILM (concluded)

ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
		• Case studies may incorporate freeze frames or audio cues to accentuate behavior, e.g., to indicate each time someone in the boating film does something especially safe.

TABLE 13. AUDIO-VISUAL SUPPORT MEDIA FOR EDUCATIONAL METHODS (concluded)

8. VIDEOTAPE

ANTICIPATED ADVANTAGES	ANTICIPATED LIMITATIONS	COMMENTS
• Instant playback capability. Can be shown in slow motion, and has fast-forward and rewind capabilities. • Tape can be reused. • Taping can continue for up to an hour (film cameras must usually be reloaded every three minutes). • Taping is fairly simple; does not require professional assistance. • Tapes are compact; easily mailed. • Playback operation is simple (video and audio levels are adjusted automatically). • Battery operated recording capabilities make it useful for remote site, on-location taping. • Videotape suffers much less wear with repeated showings than film. • Special effects can be more easily produced than with film (e.g., "dissolve" methods or superimposition of words over a picture); also less expensive to produce effects on tape. • "Dubbing" for multiple copies is cheaper than for film. • Films can be transferred to videotape for distribution, and vice-versa.	• Equipment is expensive for taping and playback. • Does not provide interaction between instructor and audience. • Videotape is a relatively new medium and equipment has not been standardized (e.g., machines may record on 1/2 inch, one inch, or two inch tape, and are not compatible with different machines). • Videotape is restricted by the size of the playback monitor (or television screen), so it is limited to relatively small audience size. • Videotape recorders and cameras are susceptible to electronic problems and require careful maintenance.	• Simple black and white videotape recorder with TV camera costs approximately $2,000. A second recorder is required for editing. A complete, but basic system would cost approximately $3,000 to $4,000. More elaborate production facilities can cost upwards of $100,000. • Tape costs about $20 per hour reel. • Probably the most valuable and versatile visual medium available.

2.3.4 Resource Materials for Educational Methods and Media Support

In-depth information is readily available for reference for both educational methods and support media materials. A selection of the most pertinent resources is presented in Table 14 in annotated bibliography form. Each of these sources is available either through the publisher or through a public/university library. The resources are organized according to educational methods and according to audio-visual media.

TABLE 14. ANNOTATED BIBLIOGRAPHY OF MATERIALS FOR EDUCATIONAL METHODS AND MEDIA SUPPORT MATERIALS

GENERAL EDUCATIONAL METHODS:

Bass, Bernard M. and Vaughn, James A. Training in Industry: The Management of Learning. Belmont, California: Wadsworth Publishing Co., 1969, 164pp.

An excellent book which includes chapters on the principles of human learning, methods of assessing training needs, designing training programs, and administering and evaluating such programs.

Goldhaber, Gerald M. Organizational Communication. Dubuque, Iowa: Wm. C. Brown Company Publishers, 1974. 391pp.

An introduction to the field of speech communication behavior, emphasizing the kinds of communication currently used in most complex organizations.

LECTURES:

Ott, John. How to Write and Deliver a Speech. New York: Trident Press, 1970.

This book explains how to deliver speeches and lectures, how to go about conducting research, organizing a speech, writing an outline, creating the speech, and so forth. It provides hints on watching out for cliches, common word traps and other problems with language. It explains humor, transitions, stage fright, and provides a checklist for the beginning speech maker.

Verderber, Rudolph F. The Challenge of Effective Speaking. Belmont, Calif: Wadsworth Press, 1970.

Explains how to select a topic, how to size up the intended audience, how to develop a speaking style, how to prepare the introduction, the body, the conclusions, how to use visual aids effectively, etc. It also discusses persuasive speech making and group discussions, as well as speeches for smaller groups.

GROUP DISCUSSIONS:

Gulley, Halbert E. Discussion, Conferences, and Group Process. New York: Holt, Rinehart, and Winston, Inc. 1968. 374pp.

This book explains why discussions are valuable, how to prepare for leading a discussion, and so forth. It also includes chapters on communication theory and theories of interaction which should be useful to those interested in educational techniques by means of the group discussion.

TABLE T4. (continued)

SIMULATION AND GAMES:

Boocock, S. and Schild, E.O. (Eds) *Simulation Games in Learning.* Beverly Hills: Sage Publishing Co., Inc. 1968.

Glazier, R.E., Jr., *How to Design Educational Games.* Cambridge: Abt. Associates. 1970.

Klietsch, R.G. *An Introduction to Learning Games and Instructional Simulations.* St. Paul: Instructional Simulations Co. 1968.

Zuckerman, D.W. and Horn, R.E. *The Guide to Simulation Games for Education and Training.* Lexington, Mass: Information Resources, Inc. 1973.

ROLE-PLAYING:

Shaftel, Fannie R. and Shaftel, George. *Role-Playing for Social Values: Decision Making in the Social Studies.* Englewood Cliffs: Prentice-Hall, 1967. 431pp.

Explores uses of role-playing for children in the development of social values. However, many of the techniques suggested are appropriate to adults. Chapters explain what is meant by Role-Playing, Guidance Functions of Role-Playing, How to lead Role-Playing sessions, etc. It also includes a checklist for guiding role-playing sessions.

AUDIO-VISUAL REFERENCES:

Kemp, Jerrold E. *Planning and Producing Audiovisual Materials*, 2nd Edition. Scranton, PA: Chandler Publishing Co. 1968. 251pp.

An excellent step-by-step description of how to produce educational media. Explains how to read a light meter, how to use press-type (rub-on letters), how to edit film, how to edit recording tape, etc. Also offers price comparison charts of various media (although these are slightly dated).

Minor, Ed. and Frye, Harvey R. *Techniques for Producing Instructional Media.* New York: McGraw Hill Book Co. 1970. 305pp.

Describes in great detail how to create posters, transparencies, etc. Explains how to select lettering pens, how to use tape-embossing machines, dry transfer letters, water coloring, spirit duplicating, thermocopy transparencies, xeroxing, etc. The perfect handbook for an aspiring graphic artist.

Wittich, Walter A. and Schuller, Charles F. *Audiovisual Materials.* New York: Harper and Row. 1967. 550pp.

Although designed as a textbook for those interested in becoming classroom teachers, this book covers the use of each medium as a teaching supplement. Describes film strips, overhead transparencies, film, posters, etc.

TABLE 14. (continued)

SUPER 8mm FILM:

Mikolas, Mark and Hoos, Gunter. The Handbook of Super 8 Production. New York: Media Horizons Press, 1976.

Probably the most complete book on film ever written. Encyclopedic in nature. Explains everything anyone would ever need to know about Super 8 film production. How to buy a camera, how to shoot film, how to edit film, how to "talk to the lab," even how to shoot aerial photography.

Movies with a Purpose. A pamphlet available free (single copy) from
EASTMAN KODAK COMPANY
343 State Street
Rochester, NY 14650

An excellent 18-page pamphlet which explains how to draw a basic storyboard, and how to film the basic, single-concept film.

16mm FILM:

Lipton, Lenny. Independent Filmmaking. San Francisco: Straight Arrow Books. 1972. 431pp.

Although it is not generally recommended that a local boating group try to produce its own 16mm films, it would be helpful for them to understand some of the basic aspects of film production in order to communicate with a production company which may be making a film for them. Probably the most complete and easy-to-read book on 16mm filmmaking ever written. Like the "Handbook of Super 8 Production" it explains how to buy a 16mm camera, how to edit film and how to talk to the lab when having film processed. It also includes information on reading light meters, types of lenses available for cameras, tripods, filming, filmstocks, etc.

VIDEOTAPE:

Hancock, Alan (Ed). Producing for Educational Mass Media. London: Logman Group, Ltd. 1976. 261pp.

A practical manual for would-be producers of educational media programs: mostly concerned with television, but also explains radio and the print media along with the basic audio-visual media. Explains how to write a script and create graphics for an educational program.

Mattingly, Grayson and Smith, Welby. Introducing the Single-Camera VTR System: (A Layman's Guide to Videotape Recording). New York: Charles Schribner's Sons. 1973. 150pp.

An excellent reference for those who know absolutely nothing about television and want to do videotaping with a portable system. Explains how to operate a camera, how to check for problems, how to dub audio onto videotape, what to touch and what not to touch on the equipment, what to

TABLE 14. (concluded)

leave to the engineers, etc. Includes basic videotape exercises on role-playing, etc., to help a videotape user learn to use the medium effectively.

Videosystems (a magazine) Published by Intertec Publishing Corp.
9221 Quivira Road
Overland Park
Kansas 66212
(913) 888-4664

This monthly magazine is especially helpful for those using small videotape systems. It is written for persons involved in producing educational and industrial videotapes and includes articles on how to create effective graphics, how to do videotape or film animation, how to edit videotape, how to buy new equipment, etc.

2.4 Subtask 4 - Review of Mass Media Educational Alternatives for Boater Educational Programs

2.4.1 Introduction

This section is concerned with ascertaining educational alternatives for recreational boaters in the mass media. The section is intended to provide information for both electronic and print media. It will attempt to cover three general areas relevant to mass media efforts: accessibility to research for determining the best media methods for delivery of programs, accessibility to creative personnel for developing actual media programs, and accessibility to evaluation procedures for assessing the effectiveness of programs.* In addition to the review of mass media materials, a study of media preferences for local boaters (Northern Alabama and Tennessee) was conducted. This study is reported in the last section of this subtask. As with the previous section, the intent here is to provide potential users with information for how to use the mass media (primarily on a local level as opposed to a national level).

2.4.2 Electronic Mass Media Educational Alternatives (Radio and Television)

The discussion of electronic mass media alternatives for boater education includes the following points:

- a basic understanding of the role of electronic media in advertising and public service contexts
- a general knowledge of how these media are organized and how they operate *vis a vis* advertisers and public service messages
- a discussion of the salient characteristics of these media and observations concerning their application to the general education tasks
- a basic vocabulary most often encountered in dealing with advertising agencies, media time buyers, research services, and creative personnel
- typical procedures for use of the media and a resource list for more detailed assistance.

---

*The resources used in preparing both electronic and print sections include: 1) professional media documents and reference materials (also see Appendix K: Contributing Resource Persons and Publications for Electronic Mass Media Educational Alternatives) 2) major media professional organizations and 3) accepted media marketing techniques.

2.4.2.1 Potential of the Electronic Mass Media for Recreational Boater Education - The mass media - and particularly the electronic media - is considered "a good place" to present messages to large numbers of people, primarily because of its pervasiveness. There exists strong evidence to support the viability of the media in terms of return on advertising dollar (see Television Bureau of Advertising, Radio Advertising Bureau, and advertising agency and market research materials). Reaching the *right* or "target" audience has been refined through the use of computers, demographic studies and socio-psychological profiles. Integral to this use of media for message presentation is the clearest possible understanding of the consumer himself. In most terms, this consumer is the viewer/product buyer, pure and simple. Conceptually, the mass media are essentially sales agents for a tremendous segment of our manufactured goods. Nearly all "national" brands make heavy use of all media, and particularly of radio and television.

Historically, mass media have been used for educational purposes for years, but on a rather limited scale. This last ten years has seen a rise in social consciousness on the part of the American population and this is being supported - in small ways, granted - by precision journalism, documentaries, and what broadcasters simply call "public service announcements (PSAs)." Most easily remembered are the anti-smoking PSAs, the pro-seat belt PSAs, the "learn not to burn" PSAs, and other driver safety and drunk driver PSAs. These are "commercials" whose underlying purpose is *pro bono publico* (for the good of the public). Air time is made available under various circumstances for free presentation, in part, as an obligation of the broadcasting stations.

Here educational potential of the electronic media, their proven effectiveness in selling or convincing, and the needs of this project begin to converge. To put it simply, it appears that factors present in the greatest number of boating accidents are human factors. A better understanding of those factors is critical to the development of *any* information to be disseminated to boaters for any purpose. In examining early attempts at convincing the public to "learn not to burn," to "watch out for the other guy," or to "look both ways before you cross," it is clear that a similar message philosophy exists in reference to recreational boating. *Present information now for possible use later*. No one can guarantee that an accident will occur or that information imparted will be needed at some point in the future (or that it will be used), but this is essentially the approach that seems most fruitful.

In summary, the tasks ahead in the area of boating educational efforts by the Coast Guard are essentially persuasive in nature. The task of creating "responsible and educated behavior" in recreational boaters is, while a formidable one, one in which the electronic media can assist. There is precedent for such use.

2.4.2.2 Vocabulary and Utility of the Electronic Media - There are a number of inherent concepts and characteristics of the electronic media which directly relate to the conduct of educational programs. It is necessary to understand these points in order to conduct a program using mass media methods. The following discussion outlines essential information for use of electronic mass media alternatives.

"The Concept of 'PSAs'" - PSAs or public service announcements are the primary means for many governmental agencies to use the broadcast media. The PSA in essence is the FCC required contribution each broadcast station must make to the "public good" in repayment for their commercial use of the air/radio waves. This means that PSAs, in contrast to commercial messages, are non-profit, and involve the donation of broadcast time for qualifying agencies.

There are two problems not shared by commercial messages involved in the use of PSAs. First, stations receive many PSAs from which they choose only those that enhance their programming or their intended image. Second, stations may broadcast the PSAs at any time of the day or night in place of time they cannot "sell" for commercial messages. The effective use of PSAs, then, is dependent upon production of dynamic, visually attractive (in the case of television) messages that remain within the 10 to 30 second range. Also, the 10 second messages are more likely to be broadcast than 30 second messages since the shorter format provides more flexibility for insertion around other commercial messages. It should be noted here that the Coast Guard has relied exclusively upon PSAs in their use of the broadcast media.

"Penetration" - This term is used to indicate the number of households in a given area having "at will" access to radio or television. It is expressed as a percentage figure. The current penetration in the United States for radio and television is so close to 100% that most media experts consider our total population able to attend to either medium at will. Penetration in a given region or city or market may obviously be lower than the national figure. For any "reach" need, it is useful to know that the potential exists for exposing nearly the total population to a message or series of messages, given the proper "vehicle," i.e., the right time on the radio or the right television program.

"Large Audience and Low Cost Per Thousand (CPM)" - In order to calculate cost efficiency of radio and television, the most common form of data presentation is the CPM or simply, how much does it cost to reach each one thousand households with a message. The higher the CPM, the lower the cost efficiency. In practice, when an audience for a given program thins out, the sponsor's CPM rises, and he often seeks a more desirable medium or program. If a station is unable to convince a sponsor that a program will attract a sizeable audience, the station or network must often cancel the program for lack of advertiser revenues to offset the costs of production and distribution of the program. The typical CPM for a prime-time television show insertion may range from $3.00 to $30.00, depending upon the specific demographics of the audience being sought. The typical CPM would be about $3.60. Although the CPM is more the concern of an advertiser making long-range funding agreements, it may be useful as a tool for determining the benefit of programs or PSAs created for the Coast Guard.

"Selectivity and Placement Patterns" - All of the following comments refer primarily to paid insertions of 30 to 60 seconds, regardless of placement patterns. Computer tabulated television viewer profiles using traditional demographic variables enable the advertiser - or the Coast Guard - great selectivity in placing a message. Once the target audience is defined, an appropriate buy is made and a particular commercial or PSA is scheduled to run in a given program. The buy is made through a station representative or "rep." The process is much the same whether on network or small stations, although the mechanism's complexity and costs differ. In the case of PSAs, most stations place them according to their convenience and according to the interest value of the message. Since most PSAs are run free of charge, they are usually placed where no other paid advertising is available. Often this results in PSAs running late at night, regardless of when the appropriate target audience is most accessible.

If a message is designated to be seen nationally and simultaneously by a given audience, then a buy is typically made through a network for such distribution. If it is determined to concentrate media effort initially in high boating accident areas, the best approach may be through the processes of national spot (non-network feed) or local buying or both. The usual buying procedure is as follows: The advertiser selects with the help of appropriate research materials where in the country he wishes to place his message. Then he contacts a "rep" who handles the business of a broadcast station in the proper market and contracts for a buy in the appropriate time slots (if they are available). In this way, various messages may run in a small number of high accident markets, simultaneously or at different times in different programs. The intentions of the advertiser or Coast Guard and the availability of a time slot are the major factors here.

Local production and buying has two advantages. A PSA for Wisconsin might very well be filmed or taped in a popular boating area there and subsequently broadcast in the Wisconsin area, thus allowing the message to be localized. The limited exposure technique also permits a typical way of pre-testing audience reaction to messages without the great expense of buying through and for network distribution. At the present time, network availabilities are few; advertisers are on waiting lists for just a few one minute commercials anywhere in prime-time.

"Rapid Distribution of the Broadcast Media" - Obviously, whether presented on a small local station or fed from a network center, any message is made available with greater speed through the electronic media than through any other. The length of time from completion of message preparation to its dissemination can be relatively short, thus allowing timely subject matter. Additionally, evaluation of effectiveness may begin more quickly than for slower media. However, this advantage is somewhat offset by the fact that the target audience definition, pre-testing, and time buying stages can take many months.

"Compressed Nature of the Message" - Commercial messages and PSAs vary in time format from 10 seconds to an occasional 120 seconds, with the most common being the 30 or 60 second format. This allows the segmenting of information or the construction of messages on various topics to be presented well within the time/cost constraints of stations, and the advertiser. In addition, this acceleration of the "real time" for presentation of a situation provides for viewing within the known attention span of the audience members. Numerous studies at advertising agencies support the viability of shorter messages in effectively communicating information. In addition, the rate of information attrition has also been examined and supports the usefulness of the shorter messages.

"Television's Visual Capabilities" - Television has at its disposal the visual techniques and tools for increasing the attractiveness and, hopefully, acceptance of a product. Advertisers have enthusiastically patronized television since their products could be seen in action in a most desirable perspective. Technical com-

102

plexity ranges from the simple presentation of a demonstration of a product to the sophisticated time-lapse photography and split-screen images. With reference to boating educational messages, a series of accident scenarios may be visually recreated and appropriate recovery action demonstrated with maximum sensory input (visual and audio). In short, television shows as well as informs.

"Supportive Nature of Electronic Media" - Typically, radio and television are used compatibly in advertising campaigns. There is, however, wide variation in the expenditures for the exposure depending upon the program or time of insertion, distribution desired, length of message, and relative emphasis of radio over television (television being the more expensive). Advertising budget allocates funds accordingly to these media. Although most major advertisers depend heavily upon the combination of radio and television, they often *coordinate* print media in the more extensive campaigns. For example, television and radio commercials can be supported by the distribution of free samples, print ads, supermarket displays, outdoor advertising, etc. Essentially, the ability of electronic media to strongly present and/or support is an extremely important aspect, particularly when high saturation of the target audience is desired.

"Techniques Available" - The electronic media have developed a wide variety of audio-visual techniques for the presentation of information. Today, it is common to see computer graphics and animation, time-lapse, slow motion, instant replay, split-screen "points of view," and many other effects for the benefit of laundry detergent or even children's cereal. The advancements in both film and videotape technology now allow very sophisticated manipulation of time and space. Consider a relevant example - it is possible with videotape to show a speedboat pulling a water skier up a ramp for a spectacular jump. As the skier leaves the ramp and is in mid-air, he is stopped while a water skiing expert literally walks beneath him on the ramp and points out desirable technique. One characteristic of videotape worth noting here is its "liveness." This permits very immediate and spontaneous effects not available with film. Yet film has the quality of "documentary" and "believability." In the many years of advertisement preparation, no expense has been spared to bring new, different, eye-catching effects to the public for the sake of increasing sales. Educational productions can also manipulate time and space to fit the learning process and make it more effective, efficient, and dynamic.

2.4.2.3 Drawbacks of Electronic Media - There are several limitations in the use of the electronic media. They are related to the large costs involved in the proper definition of the target audience, the complexity of creation and production of messages or of the PSAs, and finally, details of distribution of the messages. Potential limitations of the electronic media can often be offset or reduced by thorough planning and competent professional guidance.

Cost: Research and Creative Service - In order to define the target audience and select the best possible ways in which to reach that audience, it is essential to have access to as complete a data base as possible. Research services can be purchased and require a sizable outlay of monies. The cost of data bases generated by a number of media/marketing firms is relatively inexpensive on a per-capita-in-the-target-audience basis, but the cost is fairly high because of the large total size of the target audience. The creative production industry is also expensive. It is bound by a number of cost-elevating factors ranging from reputation of the company, current work-load, demand for services, union personnel, specialized equipment, etc. It is common to find the cost of a 30 second "spot" ranging from $20,000 to $40,000, exclusive of the cost of air time.

Cost: "Time Buying" - Time costs for commercial insertions are based on a number of variable items, many of which parallel those for the creative production companies. Such elements as prestige or standing of a station in a market, coverage pattern, and network affiliation affect the "sold out" status of a station's available time - "avails." These factors allow stations to charge their own rates, and in fact charge what "the traffic will bear." At first examination, a 30 or 60 second rate will seem costly, but when size of the audience that is reached (particularly an unduplicated audience - "cume") is worked against costs (CPM), the rates become more realistic. This perspective is necessary to demonstrate value for dollar.

Time buys are arranged through various means, depending upon whether the distribution is to take place through network or local station facilities. Networks represent themselves, generally, using their own sales departments, and small stations often handle their sales work through one or two persons. Insertions to be "spotted" around the country on various stations are generally handled through the station representative firms, or "reps." The rates for insertion on a given station are contained in a regularly updated document (*Standard Rate and Data Service*). These are encyclopedic volumes listing stations, their rate structure, various rep firms, etc. The series is updated regularly.

One manner of presentation that can reduce cost considerably is the "coop" announcement. This type of presentation is paid for on a shared basis by the local dealer of a product and the manufacturer of the product (usually national or regional in size). Typically, the message is a standardized commercial for a product with a local dealer "tag" at the end. The ratio of payment can vary from the national organization paying the greatest share, to the local paying the greatest share, i.e., there are all possible ratios for financial support. This actual sharing of the expense of air time might be considered as a good means for presenting educational messages in cooperation with a local marina or dealer.

"Turn Around Time" Necessary from Concept to Air - It is essential to plan for protracted periods in the purchasing of time and for the preparation of messages. The concepting, production, pre-testing and time buying often consume six months or more. This time is dependent upon factors such as support in other media and complexity of the messages. Because many advertisers plan reasonably long campaigns, much prime-time advertising is committed by a station well in advance. At the network level, some advertisers have waited two years to "air" commercials on the *Tonight Show*. This is extreme, but it does emphasize the need for careful foresight and planning.

Audience Reaction to the Message is Delayed or Non-Existent - The determination of the effect(s) of aired messages is difficult at best. Any measurable effect is delayed (except in special laboratory settings) and is usually impossible to assess precisely. These limitations are serious in the context of the current boater educational problem. They are particularly evident when no immediate post-message response or behavior is demanded, such as the purchase of a product for advertisements. In that light, it is essential that behavioral objectives be established for the short-term post-message period. These might assume the form of the objectives developed for KDKA-TV's *Impact Emergency Health Care*. A media research organization can advise on this point. It would be of particular use to discuss this problem with other "public interest" organizations which have the same basic problems, such as the National Safety Council, *et al*.

Perhaps the most annoying problems in media are the lack of precision of measurement and the low predictability of the effect of aired messages. The lack of proper measuring instruments limits the former and the nature of the system limits the latter. These are obstacles that will not be easily overcome when dealing with messages of the sort necessary to accomplish the Coast Guard's goals. There are, of course, testing techniques available through which some estimate of effectiveness and efficiency may be made.

2.4.2.4 Electronic Mass Media Applicability - It is apparent from the experience of advertisers and public interest groups that the electronic media are well suited to distribution of persuasive messages. Media usage studies indicate the overall response of the public to both program and advertising message content of the media. The highest credibility and public acceptance of media is for the television mode. It should be noted that private studies indicate some loss of this credibility in recent years.

If these media are to be successfully used in the dissemination of the present recreational boater educational program - and it appears that they can be - their use should be coordinated by professionals with experience in public service and advertising messages. Each of these types of persuasion demands slightly different approaches to the target audience; yet they share many common attributes and techniques. It should be assumed that all messages in the electronic media have large amounts of time and money invested before a single presentation; it is also important to recall that where no immediate behavior is required after the presentation of the message, determining the validity of the message is very difficult. Hence, pre-testing of the material is essential.

The amount of broadcasting exposure, the potential audience, and specialized target audience (boaters) are greater with television than with any medium. However, the reality of reaching many unnecessary members of the audience is also present with television.

In summary, it is essential that the message, style of presentation, seasonal timing, and placement of the message be carefully planned with expert advice for optimum effect.

2.4.2.5 Specific Considerations on Development/Placement of Programs and PSAs - Although many of the following issues can and perhaps should be handled by professional research companies or ad agencies, they do require mentioning for a functional understanding of mass media use.

1. It is important to determine to what extent the electronic media will be actually used (which media and how much). As a rule of thumb for this project, it is recommended that the electronic media be used in moderation, and it should be coordinated with selected educational options available.

2. The scope of possible media coverage and time-wise location of educational PSAs presents a major problem: there are so many different campaign possibilities that it is tempting to try them all. This temptation should be resisted and thoughtful professional advice will reinforce this caution.

3. The preparation and testing of PSAs for actual broadcasting should be done simultaneously (if possible) with a research consulting company and an ad agency. The consulting company can assist in recommending the best possible use or mix of media; i.e., radio/television/print; however, the major function of the company should be to supply demographic and marketing information. Specifically, they could acquire various consumer profiles collected by boat manufacturers, boating magazine subscription departments, etc. (This information is often collected through subscriber questionnaires and manufacturers' warranty cards.)

   At this point, ad agencies are most useful as the message preparation begins. Once content is refined and message preparation is underway, arrangements for appropriate pre-testing should be made. After any content or stylistic adjustments are made, final production may get underway and arrangements for purchase of air time should begin.

4. It appears that the most useful type of paid insertion for recreational boater education would be the spot buy, allowing for spotting the educational messages around the country. The station representative companies, and media buyers should be contacted for assistance in the buys. This, of course, does not apply to insertions run by stations without charge.

107

5. From creation to airing of a message, one should assume a minimum of three to six months' time. This varies according to season, complexity of production, availability of air time, etc.

6. The preparation of programs present very different problems from PSAs. Not only does pre-production time increase, but care and expertise involved increases. It seems that at least several public television stations have designed, and to some extent have completed, full length programs in boating instruction and boating safety. It would be reasonable to assume that incentive and perhaps funds might be made available to such stations or other stations whose interest in making such programs has already been expressed.

A cooperative funding process has been introduced in the past few years for public stations which might also prove useful as a source of support monies. The Maryland Center for Public Broadcasting produces a program/series, "Consumer Survival Kit." Although it is designed to address consumer needs and problems, their staff might be interested in assembling at least one program concerning boating and boating education. One added feature of the program is a low-cost-to-viewer "kit" concerning the program's content. A boating safety kit could be created from existing sources or developed from entirely new sources and mailed at the viewer's request.

2.4.2.6 Guide to Using Electronic Media - The resources included in this section are included to identify and clarify the procedures typically necessary to mount a campaign (educational program) using the electronic media. Ir contains readily available source material and brief explanations where appropriate. Although pre- and post-testing of messages is mandatory, no attempt has been made in this section to recommend specific research designs. The information is presented below in tabular form. Additional resource material is annotated and presented in Appendix K.

☑ Need for definitions of commonly encountered terms in electronic media.

- Sources: Standard Definitions of Broadcast Research Terms. National Association of Broadcasters, Washington.

  Broadcasting in America, 3rd Edition, Sydney Head. Houghton-Mifflin, Boston.

  Pamphlets available from Radio Information Office and Television Information Office, New York City.

☑ Need for understanding roles of typically encountered and useful organizations and services.

- Sources: Ad agencies, AAAA, Ad Council, Media buyers and planners, station representative firms, American Research Bureau, A. C. Nielsen, Frank Magid, McHugh Hoffman, Mates & Ross, Public Media Center, Corporation for Public Broadcasting.

☑ Need for understanding the nature of and differences between media audiences.

- Sources: The People Look at Television, Gary Steiner. 1963.

  Television and the Public, Robert Bower. 1973.

  Sales Management Survey of Buying Power. Published yearly.

  Extended View of Public Attitudes Toward Television and Other Mass Media. The Roper Organization.

  Radio Advertising Bureau: Pocketpiece.

  Television Bureau of Advertising: Pocketpiece.

  Advertising Campaigns: Formulation & Tactics, Leon Quera. Grid, Columbus, Ohio.

  Broadcasting in America, 3rd Edition, Sydney Head. Houghton-Mifflin, Boston.

☑ Need for familiarity with basic broadcast research techniques.

- Sources: Broadcasting in America, 3rd Edition, Sydney Head. Houghton-Mifflin, Boston.

  Broadcast Research Primer. National Association of Broadcaster, Washington.

  House Publications concerning research methods used specifically by American Research Bureau, Beltsville, Maryland; A. C. Nielsen Company, Chicago, Illinois.

Coverage and market data available in Survey of Buying Power (see above), TV Digest, TV Factbook, and Broadcasting Yearbook.

"Broadcast Rating Council," attempts to ensure proper generating and use of rating research. They "spot-check" data gathered for ratings to verify that information is accurate. They are supported jointly by the NAB and the networks.

Various rating books are copyrighted and may only be used by subscribers to the service. They contain useful audience and demographic estimates.

☑ Need for familiarity with appropriate content standards.

- Sources: Each network operates a "standards and practices" or "continuity acceptance" office. They must determine each commercial, PSA, and occasionally a program acceptable for airing. It is advisable to be aware of any specific network restraints before beginning message development and stylistic adaptation. Creative personnel at ad agencies are generally familiar with various guidelines.

It should be noted that for PSAs this is not as critical as with paid commercials, since many PSAs are created with assistance from the Ad Council or other groups already familiar with network standards.

The National Association of Broadcasters Radio and Television "Codes of Good Practice" present guidelines adopted by code members around the country. These guidelines further assist in understanding what many individual stations might deem acceptable.

☑ Checklist for campaign development.

- Sources: Most ad agencies have prepared checklists or will discuss aspects of campaign development and the various aspects of the electronic media.

  Advertising Campaigns: Formulation & Tactics, Leon Quera. Grid, Columbus, Ohio.

  "Radio Advertising Bureau" and "Television Bureau of Advertising" are essentially public relations organizations whose main task is to further promote the use of radio and television as media of advertising. In that regard they collect much information on how these media may be most effectively and efficiently used.

  A Human Information Processing Approach to the Design of Citizens Group Messages, James Murray, Ph.D. dissertation, Ohio University, Athens, Ohio. 1976.

  Recent doctoral study has resulted in message creation guidelines for citizens groups. The study synthesizes current information and learning theory and applies them specifically to the use of electronic media for more effective and persuasive communication.

☑ Coordination with other media.

Effectiveness and efficiency of other media should be investigated so as to better adapt the channel for the message to audience preferences (the various media used routinely by the audience), and to more fully saturate the target population.

☑ Estimation and securing of financial support.

It is worth noting that public television stations in recent years have begun a cost-sharing cooperative to allow stations to create a single program or a series of programs for distribution without bearing the total cost themselves. Proposals for the program are drafted and submitted to the cooperative for possible approval or modification.

The Coast Guard might be able to employ a cooperative procedure to fund a boating safety program or a series. This procedure may be a very efficient use of funds allocated for educational efforts. Several public stations have proposed or actually created similar or applicable series (notably KPBS-TV, San Diego and WMVS-TV, Milwaukee). KPBS-TV proposed but failed to get support for its series from the cooperative; however, WMVS-TV created "Shape Up or Ship Out," apparently with Coast Guard assistance. KPBS-TV's Program Manager, Brad Warner, expressed continued interest in doing the series.

As a general rule, the total costs for spots, programs, and campaigns should be estimated by professional production and advertising personnel. The process is extremely complex in that numerous considerations bear on the computations.

☑ Securing appropriate creative support.

Creative costs are high and again professional production personnel should be employed. There are a number of fine free-lance personnel available and many recently formed progressive agencies. Cost may be a factor in selecting which of the two resources to use and there need not be a loss in product quality.

Although most advertising agencies create campaigns and advise on the coordination of the media exposure, they sub-contract the actual production, usually through a bidding process. Agency production and creative supervisors can nearly always supply capable production personnel.

☑ Pre-testing before exposure to target audience.

In the early states of production and concepting, pre-testing will help determine the effects of the messages long before final production or time buys are made. This, of course, allows changes to be made in the messages without crisis-time constraints and before large additional expenditures are incurred for air time.

☑ Securing appropriate media buying and placement assistance.

The costs for air time on broadcasting facilities (and for insertions in mass print media) are compiled in the Standard Rate and Data Service (SRDS).

For network presentation of messages (PSAs or programs), the network sales offices should be contacted directly. For national spot advertising (messages running in selected markets or regions, but not fed by the network), a station representative (rep) or a regional media buyer should be consulted. Reps and media buyers are available in most medium size and all large markets. Local buying is handled by a salesman at the station itself.

Recently, the networks have also begun "repping" local stations. Their job may now include the sales of national spot insertions (buys) as well as the normal sales of network distribution.

In the case of PSAs, most are simply prepared, sent to stations (e.g., Heart Fund, Fire Prevention, etc.) and are scheduled whenever the station is able to do so. They frequently run at the least desirable times and often when the station has been otherwise unable to sell the time to an advertiser. The PSA/unpaid airing approach permits very little control over the time of presentation, and consequently the message may miss the target audience, there may be problems in post-evaluation, etc.

113

Below is a list of the major rep companies; nearly all have offices or affiliated offices in New York, Chicago, Atlanta, and Los Angeles. Each rep may only represent one station in a given media market.

1. Peters, Griffin and Woodward
2. The Katz Agency
3. Harrington, Righter, Parsons
4. John Blair and Company
5. McGavren-Guild
6. Avery-Knodel

In addition, there are a number of independent reps who work as free agents without a company affiliation. Rep companies and individuals can be identified in the Broadcasting Yearbook; it is also cross referenced for use in identifying a particular station's rep.

☑ Presentation and post-evaluation

After presentation, a post-evaluation should be mounted in order to determine, to the extent possible, the effectiveness and efficiency of the messages. In addition, modifications for future and total project evaluation should be accomplished at that time.

2.4.3 Print Mass Media Educational Alternatives

In the past fifteen years print media - notably newspapers - have ranked close to television as a most valued source for information by the American public. Traditionally, these two media have invited the spending of a large portion of advertising/promotion dollars spent in all media.

The concept of the PSA exists in the print media as well as in the electronic media, and offers unique opportunities for the preparation and distribution of a wide range of messages. As with the electronic media, assistance is also given by the Ad Council.

The essence of effective message dissemination needed for most promotional and educational programs is to fully coordinate the use of media and information. The challenge is to take proper advantage of the positive characteristics of each medium while working within the financial and temporal limitations imposed. Again, the task of promotion and mass education is a persuasive one and one in which the print media can assist.

2.4.3.1 Vocabulary and Utility of the Print Media - Generally, the vocabulary of terms often parallels that of the electronic media industry. However, specific applications of the terms do vary.

"Penetration and Readership"

"Penetration" is typically applied to the number of households having at its disposal a particular medium. In print this could apply to the number of households buying a paper on a regular basis. "Readership," although occasionally used interchangeably, usually indicates the number of different readings or exposures received by a particular issue of a paper or magazine, compiled by some unit. For example, readership of a paper nationally averages several readings per household. Depending upon the source of information, the penetration for newspapers is reported to be as high as 75% of the population. Other statistics indicate that a large portion of the population buys one newspaper and one specialty news magazine regularly. As always, it is important to know the extent to which a medium of communication has the potential to reach the target audience, or the extent to which the medium is available on demand to the audience.

"Audience Size and Cost Per Thousand (CPM)"

Audience size and CPM are also used in print media for the development of a cost efficiency index. In the various print media CPM can range from under $1.00 per one thousand exposures for outdoor advertising to very high rates for specialty magazines. The print media materials likely to be developed for education of recreational boaters could conceivably be paid insertions for exposures. It will be necessary to know for budget estimates the cost efficiency of each medium.

"Selectivity and Placement Patterns"

Various research services as well as the media industries themselves provide demographic information on their readership and exposures. In addition, "priority" positions in a newspaper or magazine have been identified and for these a client pays a higher page cost for insertion. Print also allows a wide variety of size for an insertion, type of publication, locale, season, etc. As in the electronic media there are "reps" who assist in purchasing space for a client. One "rep" can provide guidance for a number of publications. Some group-owned newspapers and magazines "rep" themselves. Many considerations enter into the best placement of a message regardless of whether it is to be seen locally or nationally primarily because of the flexibility of the print media. A carefully defined target audience prior to media selection is most important.

"Distribution System"

The distribution system of print media materials is relatively slow as compared to the electronic media. However, if proper lead time is given for the creation and production of these materials, then the rate of distribution can be coordinated with the needs of the program. Actually, arrangements for the presentation of print materials can often be made more quickly than for use in the electronic media. An understanding of the speed of the distribution system assists in the planning of a production schedule for various messages in a coordinated program.

"Nature of the Message"

More often than not, the key to use of all types of mass media is brevity. This is generally true for the print media, but this media is much more forgiving when complex messages demand length. Magazines and newspapers do have the flexibility of expanding their editions to accomodate further advertising, articles and the like. Space is to the print media as time is to the electronic media. One important mode for presentation of boating educational messages is outdoor and other poster-type formats, such as the display posters in airports, on buses and other public transportation. The physical size of these messages attracts a certain amount of attention wherever they are placed. However, message length (space) considerations here are quite rigid.

Nationally, within the newspaper, magazine, and outdoor advertising industries there is a great deal of similarity in terminology, size of message and space limitations, exposure rates, etc. In many respects the print media are less complex to deal with than the electronic media, and print often provides access to some demographically defined groups not covered as fully by other media. The experience of professional media personnel will be extremely helpful in planning and using the print media.

110

"Visual Capabilities"

The print media are limited to a more static message format than other media. However, print can be used quite imaginatively in terms of color, large or contrasting size, special tearouts, foldouts and even aroma impregnation. The sophistication with which these presentation characteristics are operationalized in the print industry today is truly impressive. The quality of paper stock, color reproduction, and variety of type faces can add impact to a well-designed campaign. Size is an extremely important factor, particularly in quick exposure media such as billboards and other outdoor formats. It should also be noted that outdoor design permits specialized and even moving presentations, though still somewhat limited in nature. These, of course, are custom designed to fit the needs of the organization purchasing the space.

"Supportive Nature of Printed Media"

All print media provide potential support to a coordinated persuasive educational effort. Support here can be within the various print media, and also between print and electronic media. In a coordinated effort, as is being recommended regarding boater education, failure to utilize at least the most useful combinations of media would be an error.

"Techniques Available"

Most available techniques regarding print production are determined by the state of the art for printing technology (specifically color, high quality reproduction, stock quality and speed of reproduction).

Additionally, ways in which the print media typically secure their information are also of use here. As much as 80% of non-advertising materials in an average newspaper originate with the information source itself. For example, much of the material printed concerning television shows, local theatrical productions, boat and trade shows, public service projects and others, are sent to the press, already prepared in concise presskit form. These kits are sent directly to a paper or interest magazine. The purchasing of materials from feature syndicates and the use of presskits help keep overhead costs down for the news oriented publications. This aspect of newspaper operation is particularly useful for boater education and can be a very cost efficient way of reaching large audiences of boaters and sportsmen with boater education materials.

117

2.4.3.2 Limitations and Other Characteristics of the Print Media - One often cited limitation of print media is that it lacks the static dynamic nature of television. Colorful, moving television messages certainly attract attention, but the traditional uses made of print by the public might very well prove to be the most persuasive assets for the boating education task. For example, print has traditionally been used as a source of highly credible and accurate information.

Since up to 70% of some papers is made up of advertising, an Ad Council-type public service insertion would have a real visibility problem, competing for the reader's eye with flashy, attractively designed ad copy. A column insertion in the sports section - a section with one of the highest of all readerships - would eliminate visibility problems and would be reaching a well defined target audience as well.

Print media in their supplementary roles can easily reinforce action to be taken in an accident scenario presented in other media, calling upon the reader's imagination and raising his level of participation in the message. This latter point concerning reader participation is an extremely important element in contemporary learning theory.

"Cost: Research and Creative Services"

Overall, the costs for research and creative services for print are less than those for the electronic media. Both the demographics and complexity of the print media are less formidable than they are for the electronic media. Creative services required are often less sophisticated than those for the electronic media, and therefore less expensive for preliminary "set-up." However, there does remain the need for quality professional assistance for planning and preparation of messages.

"Cost: Space and Exposure"

Print costs and exposure costs vary considerably depending upon locale, season, type of publication, frequency of insertion, reputation of the publication, "special requirements" needed, use of color, etc. Rates for paid insertions can be obtained through the *print volumes* of Standard Rate and Data Service (also published for electronic media rates). Of course, using the presskit concept, costs would only be incurred in the production and mailing of such kits to desirable publications.

"Turn-Around Time" from Concept to Publication

Generally, early planning and production of media materials is required in order to have full control over insertions or display. The most desirable publications and priority positions are filled several months in advance. (This is particularly true with magazines.) If the information is sent through a presskit, at least two to three weeks' time should be allowed for the columnist to read the material, edit it and decide just when it might fit into the regular column.

The idea of available space when paid insertions are sought demands relatively long-range planning to insure that the proper "buy" will be made. This is very critical when dealing with seasonal material as would be the case with boating materials oriented for sportsmen for hunting season, etc. Standardized sizes for insertions in the print and outdoor advertising industries allow messages to be produced in large quantity and presented on a national scale with a minimum of difficulty. Once the preliminary items are dealt with, arrangements through "reps" can be made rather quickly.

Audience Reaction to the Message

It is recommended that behaviorally oriented general and operational objectives for the total campaign be developed. Thus the audience response need not be measured by a single message or single medium, but by the campaign as a whole (e.g., reduction of fatalities or reported injuries). As with the electronic media, there are testing techniques available through which some prior estimates of effectiveness may be obtained.

2.4.3.3 Mass Media Summary Statement - It is clear that nearly all media currently in use in conventional campaigns have potential for use in a boater educational program. The primary tasks ahead for conducting a recreational boater educational program are essentially the same as the choices which face an advertiser: the evaluation of each medium's characteristics; the applicability of the medium to the persuasive task at hand; and the "mix" of media to be used to reach the target audience within the limits of funds and time available.

2.4.3.4 Guide to Using Print Mass Media - This guide is designed to provide basic steps and informational resources for use of the print media. Materials mentioned are readily available. There is no attempt here to recommend specific research designs, although some pre- and post testing of messages is mandatory.

☑ Need for definitions of commonly encountered terms.

- Sources: Various basic journalism texts.

  American Newspaper Publishers Association.

  Magazine Publishers Association.

  Pocket Guide to Outdoor Advertising (Institute of Outdoor Advertising, NY).

  A Creative Guide to Outdoor Advertising (Institute of Outdoor Advertising, NY).

☑ Need for understanding roles of typically encountered organizations and services.

- Sources: Ad agencies, AAAA, Ad Council, media buyers and planners, print representative firms, Institute of Outdoor Advertising, American Newspaper Publishers Association (ANPA), Magazine Publishers Association (MPA), Public Media Center.

☑ Need for understanding the nature of and differences between media audiences.

- Sources: Sales Management Survey of Buying Power.

  Changing Public Attitudes Toward Television and Other Mass Media, 1959-1976. (The Roper Organization, NY).

  Publications mentioned in the report on electronic media.

☑ Need for familiarity with media research techniques.

- Sources: Most sources cited for electronic media in Section 2.4.2.6.

  House publications from ANPA, MPA, etc., and other Marketing organizations.

  Media Decisions magazine.

☑ Need for familiarity with appropriate content standards.

- Sources: AAAA, ANPA, MPA materials.

  Most newspapers and magazines have some statement of position on content or what types of materials are acceptable. Such statements can be secured from them directly or through such books as Writer's Market, a book containing specific information conerning editorial policy, target audiences of certain publications, deadlines, etc.

☑ Need for checklists for campaign development.

- Sources: Most ad agencies provide checklists for new clients as do "reps," newspapers, and outdoor advertising companies.

  A Human Information Processing Approach to the Design of Citizens Group Messages. James Murray, Ph.D. dissertation, Ohio University, Athens, Ohio, 1976.

  Advertising Campaigns: Formulations and Tactics. Leon Quera. Grid Publications, Columbus.

  Working Press of the Nation, National Research Bureau, Chicago. Publishes volumes containing syndicates, columnists in various categories, etc.

  Newspaper Promotion Handbook, David Stern. National Newspaper Promotion Association, Providence.

Ayer's Directory of Newspapers and Periodicals. N. W. Ayer, NY. Comprehensive list of U. S. and Canadian publications for use in determining the most appropriate publications for use, etc.

☑ Need for coordination with other media.

- Sources: Most advertising agencies will advise on the development and conduct of a media campaign. In addition, the following concise explanation of campaigns is particularly useful.

  Advertising Campaigns: Formulation and Tactics. Leon Quera, Grid Publications, Columbus.

  TDI/Division of the Winston Network, N.Y. This organization in particular works with poster materials in airports, etc.

  Media Decisions magazine describes techniques currently in use by major advertisers and public service groups. Although its primary focus is on the commercial advertiser, it is a valuable source of information concerning cross-media use and costs for use of media.

☑ Estimation and securing financial support.

The Ad Council does operate an ongoing program of bringing messages of a "public spirited" nature to the American public through various media. The organization operates free of charge essentially for such clients, but desirable exposure cannot be guaranteed.

It is suggested that assistance from marinas and other retail/manufacturing concerns will defray some of the costs of producing mass media materials. The concept of "tag" naming a retailer as an underwriter of the booklet or ad is often quite attractive as a method for reaching a buying public without specifically trying to sell a product. This sort of cooperative venture is not uncommon in media.

As with the electronic media, cost estimates should be carefully worked out with the assistance of professional media personnel.

☑ Securing appropriate creative support.

- Sources: There are a large number of highly professional free-lance persons, many of whom are as capable as long-standing and well-known companies. Often the cost differential is great enough to warrant using these free-lance artists. Many of them, as well as large commercial organizations, are listed in The Creative Blackbook, N.Y., a spiral-bound catalog of personnel, issued yearly in December. ($15 per issue). Free cover writers are also listed in Working Press of the Nation.

☑ Pre-testing of messages

Most advertising agencies dealing with print media can recommend procedures concerning pre-testing and post-evaluation.

Most companies dealing with pre- and post-testing of messages in media provide testing for all media or at least most media. Three National companies of noteworthy stature that do this kind of research are Mates and Ross, Frank Magid, McHugh and Hoffman.

☑ Securing appropriate media buying services

A wide variety of representative organizations ("reps") exist to assist a client in the purchasing of desirable space in the print media just as they do for the electronic media.

In documents like Editor and Publisher Yearbook one can determine the best "rep" or group of "reps" to approach for a particular publication. As in the other media, local offices are found in most major and medium sized markets. Small newspapers, group owned publications and small specialty magazines often rep themselves.

☑ Presentation and post evaluation

Presentation, and preparation for the presentation are primary and focal elements in program design. But in the final analysis it is the effectiveness of the campaign which needs careful and thoughtful study. Only by setting general objectives for the whole campaign, and by setting specific objectives for individual messages can proper evaluation be carried out. Again, professional assistance would be required here. There is also a potential source for evaluation inherent in the regulatory effectiveness research currently underway.

2.4.4 Local Boater Media Preference Study

2.4.4.1 Introduction and Purpose - The preferences a person holds for various media sources are determiners of when and how much he exposes himself to a certain medium, and the extent to which he believes the information presented via the medium.

A study was conducted to assess the mass media preferences for a local group of boaters who were among the general attendance of two recent boating trade shows. Although information regarding mass media preferences is available for the national population of media consumers, there appears to be no information available regarding the preferences of the segment of the population active in recreational boating. The purpose of the present effort was two-fold:

- to determine if differences did exist between mass media preferences of the national population as a whole, and a small, localized segment of the boater population;
- to compare mass media preferences for the local boaters according to sources for "general information" and for specific boating information.

The findings of this part of the educational project should provide additional guidance for selection of media for educational programs directed to recreational boaters in the local area. They may also be suggestive of similar research previously conducted on a nationwide level.

Comparisons of the media preferences for local boaters and the national statistics were made using the major mass media studies available. These studies are as follows:

- G. Steiner (Bureau of Applied Social Research, Columbia University) 1960* (Reference 10)
- R. Bower (Bureau of Social Science Research); a replication of the Steiner work, 1970 (Reference 11)
- R. Bower (Bureau of Social Science Research); ongoing assessment of media attitudes and preferences begun in 1959, and complete through 1976 (Reference 12).

---

* This study includes the results of two simultaneous but independent sample surveys, one by the National Opinion Research Center at the University of Chicago, and one by Elmo Roper and Associates.

If differences did exist between media preferences for the local boaters and the national statistics, then there is some evidence for different media usage for the boater group. In the event that no differences were observed, then the previously established national statistics for the general population should be applied in the selection of media types and timing for boater educational programs. In addition, if differences were detected for sources of boating information as opposed to general news and world affairs information, then research in addition to general media preferences should be used in planning the dissemination of boater educational materials.

The dimensions for assessment and comparison of mass media preferences were as follows:

- "From which media do you get most of your information concerning what is happening in the world"
- "If you received conflicting information from the media, which would you most likely believe"
- "If you received conflicting information from the media, which would you least likely believe"
- "If you could only have one medium to get information, which would it be"

These same dimensions were then altered so as to address information specific to recreational boating, resulting in four additional items. This media study was developed and conducted by J. Berman (consultant), with assistance from N. Whatley and C. Stiehl, for analysis of data.

2.4.4.2 Method and Procedures – The local study employed conventional materials and procedures used in field settings. Within the limitations imposed by the field settings, measurement was made as precisely as possible with the use of a fairly detailed measurement instrument. It was intended that boaters serving as respondents would spend considerable time and concentrated effort in answering the questions.

The questionnaire consisted of three sections. Part One included demographic information, factual information concerning the boat owned, and the boaters' accident histories. This part of the questionnaire was originally prepared by

T. Doll for the survey of boater personality characteristics (Section 6.2, in Pleasure Boat Loading Related Accident Education, 1978), and was utilized in the present attitude assessment study for purposes of economy. The demographics selected from that form served to identify the composition of the group of respondents in the present study. Items used for this study included: age, sex, marital status, formal education, and occupation. Two additional items used to characterize the respondents, although they were not strictly demographic, were: the size and type of boat owned, and how often the boater used his boat.

Part Two consisted of a series of criterion items to determine attitudinal response concerning issues relevant to the likelihood for involvement in a boating accident. The outcome for these items is presented in Section 6.1 of the final report for Pleasure Boat Loading Related Accident Education (contract DOT-CG-40672-A, Task 16).

Part Three consisted of the measurement items to determine the local boaters' media preferences for this study. Eight criterion items were constructed using the multiple choice format. The item stem included the issue or kind of information sought by the respondents. The alternative answers consisted of the various media sources, of which the respondent was to select one choice. This format is one of several conventional techniques for assessment of media preferences. The items were constructed so that each item was an assessment of a single dimension of media preference. A copy of the complete questionnaire is presented in Appendix L.

The media study was administered to persons selected from the general attendance of two boat trade shows occurring late in February, located in Muscle Shoals, Alabama and Memphis, Tennessee. A research team of Wyle personnel selected respondents for the study and gave instructions for completion of the questionnaires. The team consisted of three persons well qualified for this task since they had extensive experience in interviewing for boating accident investigations. Prior to the administration, team members were briefed on how to select respondents, and how to introduce the study without biasing the results. They were given detailed definitions for several words used in the questionnaire that might prompt questions. A copy of the instructions is attached to the questionnaire in Appendix L. The study was administered from the local Coast Guard exhibition booth at the shows. and each respondent completed the questionnaire at or near the booth within the control of the team members. Since it is desirable to obtain representation of respondents from all demographic categories, the research team was instructed to select a wide variety of participants for the study. As persons in the general attendance of the exhibition passed by the Coast Guard exhibition booth, likely candidates were approached personally by a team member and asked for their cooperation in the study. Each person was told that the project would take about 10 or 15 minutes of his time and that he would receive a small gift for his effort. The project was identified only as a "Wyle Laboratories Research Project." If a respondent persisted in an inquiry about the study, he was told that "the Coast Guard is funding the project." If the person agreed to participate, he was asked to sit down, given a questionnaire and pencil, and instructed on how to complete the questionnaire properly.

The questionnaires were given out to every other person on an alternate basis with the previously mentioned personality questionnaire (presented in the final report for Pleasure Boat Loading Related Accident Education). No respondent was given both the personality and media questionnaires to complete. When the respondent returned his completed questionnaire, he was given his choice of one of three small gifts (floating key chains, small first aid kits, or disposable penlights).

It is unlikely that administering the questionnaire from the Coast Guard exhibition booth would have influenced the respondents' choice of general media preferences. However, it is possible that respondents may have been influenced in their responses concerning their sources of specific boating information. A possible resultant bias would be an overstatement of preference or credibility for the "formal organizations" alternative which included the Coast Guard Auxiliary as an example organization. Alternatively, respondents could have reacted to some negative experiences they had in the past with an enforcing agency and deemphasized the preference or credibility for the "formal organizations" alternative. It is assumed for the analysis of the data that these two possible biases have a cancelling effect, and will contribute only to variability of the distributions of data. This is a conventional assumption routinely made for situations of this type.

2.4.4.3 Results of the Media Preference Study – One hundred twenty-six respondents participated in the study. Twenty-six respondents completed questionnaires at the Muscle Shoals boat show and 97 respondents completed questionnaires at the Memphis boat show. The ages for respondents ranged from one person under 12 years of age to nine persons between the ages of 51 to 60 years. Mean age for the respondents was 32.02 years. Nearly twice as many males as females participated (84 males and 39 females); three persons did not indicate their sex on the questionnaire. Eighty-eight (73%) of the respondents were married and 22 (18%) were single; the remainder were either divorced, widowed, or separated. Five persons did not respond to the marital status item. Education level for the respondents was high, with 46.9% having at least one year of college. Education level was reported by all participants and ranged from five respondents with less than an eighth grade level to eight respondents with qualifications beyond the Master's degree. The most frequently reported occupations were in the managerial and medical categories. Selected demographics are summarized in Table 15.

Tabulation of information concerning the sizes and types of boats owned by respondents shows representation of all boat size categories, and all types of boats. As would be expected from NBS and CG-357 sources, the largest number of respondents owned boats in the 14 to 16 ft and 16 to 18 ft categories. Sixteen respondents owned boats less than 14 ft and eight respondents owned boats over 26 ft. The types of boats used most often by the respondents ranged from 65 respondents with runabouts to two respondents with canoes. Twenty-eight respondents used johnboats most often. A summary of distributions of respondents for boat size and boat type is also presented in Table 15.

Respondents were almost equally divided as to whether they had accidents or not. Sixty persons (47.6% of the total group) reported having had some boating mishap.

TABLE 15. SUMMARY OF CHARACTERISTICS OF RESPONDENTS FOR AGE, SEX, SIZE OF BOAT AND TYPE OF BOAT

RESPONDENT CHARACTERISTIC	FREQUENCY OF RESPONDENTS	PERCENTAGE OF RESPONDENTS
Respondent Age		
Under 12	1	0.8 %
12 - 15	4	3.3 %
16 - 19	6	4.9 %
20 - 25	22	17.9 %
26 - 30	18	14.6 %
31 - 40	42	34.1 %
41 - 50	21	17.1 %
51 - 60	9	7.3 %
Over 60	0	0.0 %
Total	123	100.0 %
No answer:	3	
Respondent Sex		
Male	84	68.3 %
Female	39	31.7 %
Total	123	100.0 %
No answer:	3	
Length of Boat Respondents Used Most Often		
Under 14 ft	16	13.0 %
14 to 16 ft	44	35.8 %
16 to 18 ft	30	24.4 %
18 to 20 ft	16	13.0 %
20 to 22 ft	4	3.3 %
22 to 26 ft	5	4.1 %
Over 26 ft	8	6.5 %
Total	123	100.0 %
No answer:	3	
Type of Boat Respondents Used Most Often		
Johnboat	28	23.9 %
Runabout	65	55.6 %
High Performance	4	3.4 %
Cruiser	14	12.0 %
Sail Boat	4	3.4 %
Canoe	2	1.7 %
Total	117	100.0 %
No answer:	9	

The demographic data indicate some differences between the boater sample and the samples used in the national surveys (see Table 16). However, these differences do not appear to be important sources of error. The age group represented in the boater sample is more compact than those in the national surveys; that is, 82% of the boaters were in their 20's and 30's, while only about 40% of the national samples fell in this range.

The sex difference between the local boater sample and the national media survey samples (a higher percentage of males in our group) is indicative of the difference between the general population and the population of boaters.* A smaller percentage of married respondents in comparison to the 1960 Steiner and Roper studies (70% vs. 80%) may be a reflection of a national trend over the 17-year time span. These latter two differences (sex and marital status) probably reflect actual differences in the populations which the samples were intended to represent, and thus are real and essential. Otherwise, there are no striking differences apparent in demographic data, and the comparisons appear to be appropriate for present purposes.

The comparisons of overall media preferences between local boaters and the national survey groups involved the four items dealing with media sources of general information. The comparisons were confined to mass media alternatives, such as television, newspapers, etc.: data regarding "friends" as a source of information for the local boater study had no comparable category in the national studies.

In several instances, precise media by media comparisons could not be made because of format differences between survey items. However, comparisons were approximated by using a combination of quantitative data where available in the national studies and interpolated verbal data.

The summary of results is presented in Table 16. The values shown for the various cells in the table are rounded percentages of the total sample sizes (i.e., response frequency/n for each sample).

---

* According to NBS (Reference 13), the boating population is composed of 75% males.

TABLE 16. COMPARISON OF LOCAL MEDIA PREFERENCES WITH NATIONAL STATISTICS

ITEM	MUSCLE SHOALS/ MEMPHIS - 1977	STEINER - 1960		BOWER - ROPER - 1970	ROPER - 1976**
		N.O.R.C.	ROPER		
Age					
20-40 (Other categories unavailable for additional data.)	82%	41%	43%	39%	NCP***
Sex					
Male	67%	48%	50%	48%	NCP
Female	31%	52%	50%	53%	NCP
Marital Status					
Married	70%	80%	81%	NCP	NCP
Single	18%	-	-	NCP	NCP
Education					
High School Diploma	28%	25%	31%	35%	-
Some College	11%	9%	9%	12%	-
College Degree	18%	8%	8%	12%	-
Business/Trade	14%	8%	9%	-	-
Item 1 - Major information source					
Television	42%	38%	36%	Interpolation - Relative rankings for media according to importance are: 1) television 3) radio 2) newspapers 4) magazines	64%
Newspapers	40%	40%	37%		49%
Magazines	9%	5%	7%		7%
Radio	5%	14%	16%		19%
Item 2 - If conflicting information, most believable source **					
Television	40%	NCP	NCP	Interpolation - Relative rankings for media according to importance are: 1) television 3) radio 2) newspapers 4) magazines	51%
Newspapers	28%	NCP	NCP		22%
Magazines	14%	NCP	NCP		9%
Radio	5%	NCP	NCP		7%
Item 3 - If conflicting information, least believable source **					
Television	14%	NCP	NCP	Interpolation - Relative rankings for media according to which is doing the least for the public: 1) magazines 3) television 2) radio 4) newspapers	NCP
Newspapers	14%	NCP	NCP		NCP
Magazines	17%	NCP	NCP		NCP
Radio	4%	NCP	NCP		NCP
Item 4 - If only one source available					
Television	33%	NCP	NCP	Findings suggest approximately the same rankings for media preferences as in local survey.	
Newspapers	33%	NCP	NCP		
Magazines	11%	NCP	NCP		
Radio	7%	NCP	NCP		

*Multiple answers have been accepted when people have named more than one medium.

**Although "friends" ranked as believable sources here, they are not shown for comparison to the mass media data.

***No comparison possible.

Television and newspapers were the two major, approximately equally important, information sources in every study. Radio fared somewhat better in the national surveys (ranging from 14 to 19% of responses) than in the boating surveys (5% of responses). Magazines were rarely listed as major sources either by boaters (9%) or nationally (5 to 7%). The second item, asking which source would be most believable in a situation involving conflicting information, produced identical rankings to those for Item 1 for the boaters, although the percentage of listings of newspapers dropped somewhat (from 40 to 28%). Where comparison was possible, national data showed no substantial differences from these results. When asked which source would be considered least believable in the case of conflict (Item 3), magazines at 17% were listed somewhat more often by the boaters than the other sources, with television and newspapers sharing second rank at 14% each, and radio being listed 4% of the time. It may be noted that the low percentages appearing for this item for the local boaters (a total of 49%) are the result of a total of 51% of the respondents listing "friends" (which was left out because it had no counterpart in the national data) as being least believable. While there were no directly comparable data available from the national surveys, interpolation of responses to the 1970 Bower-Roper study was made to find relative rankings of the media according to which "is doing the least for the public." Magazines were again shown in the most unfavorable light. In that survey, however, radio ranked second, followed by television and then newspaper. The differences here may be due to the fact that the items actually address somewhat different issues. The fourth item concerned the choice of medium if only one source was available. Boaters chose television and newspapers equally often (33% each), followed by magazines (11%), with radio least often mentioned (7%). There was no directly corresponding information in the national surveys, but interpolation of existing data suggested approximately the same ordering for media preference in the 1970 Bower-Roper survey and the 1976 Roper survey as was found in the boating study.

These results indicate then, that boaters (as represented by the present local sample) do not differ substantially from the general population in terms of media preference where sources of general information are concerned. Apparently there is no need to deviate from the recommended use of mass media for the general public in order to reach the boating public with messages advertising boating courses, for example. The possibility remains, however, that boaters turn to other sources for information relating specifically to boating. Items 4 through 8 pertained to sources for boating information. Responses to all eight items (including the four general information items) were analyzed by dividing respondents into two groups: those who reported having been involved in an accident and those who had never been involved in an accident.

Should different patterns of media use and preference emerge for these two groups, this might be taken into account in designing the boating education program so as to reach those persons who apparently are most in need of safety information.

Items one through four were general information items. In Item One, when the local boaters were asked the usual source of most of their information about what is going on in the world, over 80% responded "newspapers" or "television," with those 80% split evenly between the two. Less than 20% of the respondents answered with "radio," "magazines," or "friends." There is very little difference, if any, between the set of responses from the accident group and the set of responses from the group that had not experienced a boating accident.

The crosstabulation shown in Table 17 reveals no apparent relationship between the accident/no accident classifications and the preference (in terms of usage) for various media ($\underline{C} = 0.172$, $\chi^2(4) = 2.942$, $p > 0.05$).

TABLE 17. RESPONSES OF BOATERS WITH AND WITHOUT ACCIDENT HISTORIES TO THE QUESTION: "WE'D LIKE TO KNOW WHERE YOU USUALLY GET MOST OF YOUR INFORMATION ABOUT WHAT IS GOING ON IN THE WORLD."

SOURCE	ACCIDENT GROUP	NO ACCIDENT GROUP	TOTAL
Newspapers	18 (42%)	21 (39%)	39 (40%)
Television	18 (42%)	23 (43%)	41 (42%)
Radio	3 (7%)	2 (4%)	5 (5%)
Magazines	4 (9%)	5 (9%)	9 (9%)
Friends	0 (0%)	3 (6%)	3 (3%)
TOTAL	43 (100%)	54 (100%)	97 (100%)
Missing	17	12	29

Item Two asked the local boaters to specify the version of information they would be most likely to believe if they received different or conflicting information from alternate sources. The boaters expressed a preference for newspapers and television (68% overall), but the preference in terms of believability was not as strong as the preference in terms of frequency or extent of use of the source expressed in Item One (82% for newspapers and television overall). This difference is largely caused by the newspaper data: apparently, while it is as often used, it is less often believed, in case of conflict, than is television. While radio and magazines remained low choices on this item, just as they had been on Item One, friends were more often listed as being believable (13%) than they were listed as being major sources of information (3%). However, this still remains a small proportion of the whole group. The data in Table 18 show no apparent relationship between the accident/no accident classification and the expressed believability of different media ($\underline{C} = 0.173$, $\chi^2(4) = 3.692$, $p > 0.05$).

TABLE 18. RESPONSES OF BOATERS WITH AND WITHOUT ACCIDENT HISTORIES TO THE QUESTION: "IF YOU GOT CONFLICTING OR DIFFERENT INFORMATION, WHICH VERSION WOULD YOU BE MOST INCLINED TO BELIEVE?"

SOURCE	ACCIDENT GROUP	NO ACCIDENT GROUP	TOTAL
Newspapers	17 (31%)	16 (25%)	33 (28%)
Television	17 (31%)	30 (47%)	47 (40%)
Radio	4 (7%)	2 (3%)	6 (5%)
Magazines	9 (16%)	8 (13%)	17 (14%)
Friends	8 (15%)	8 (13%)	16 (13%)
TOTAL	55 (100%)	64 (100%)	119 (100%)
Missing	5	2	7

Item Three asked the boaters to identify the least believable media source. Overall, more than half of the respondents (51%) stated that "friends" were the source that they would be least likely to believe. This response may explain (at least partially) why so few (3%) respondents listed "friends" as the source of most of their information on Item One. There were no big differences among the other media, except that radio was not often listed. The data in Table 19 indicate no relationship between the accident/no accident classification and the least believable information source ($\underline{C} = 0.106$, $\chi^2(4) = 1.316$, $p > 0.05$).

TABLE 19. RESPONSES OF BOATERS WITH AND WITHOUT ACCIDENT HISTORIES TO THE QUESTION: "WHICH OF THE VERSIONS WOULD YOU BE LEAST INCLINED TO BELIEVE?"

SOURCE	ACCIDENT GROUP	NO ACCIDENT GROUP	TOTAL
Newspapers	9 (16%)	7 (12%)	16 (14%)
Television	9 (16%)	7 (12%)	16 (14%)
Radio	2 (4%)	2 (3%)	4 (4%)
Magazines	9 (16%)	11 (18%)	20 (17%)
Friends	26 (47%)	33 (55%)	59 (51%)
TOTAL	55 (100%)	60 (100%)	115 (100%)
Missing	5	6	11

Item Four asked the boaters to indicate the media source that they would most want to continue to have if they were allowed to have only one. Overall, the respondents expressed a preference for television and newspapers (66% combined), with approximately an equal split between those two alternatives. Radio, again, had the lowest rating, with 7% choosing it as the preferred sole source. Results are shown in Table 20. As in previous items, there was no statistically significant association between the accident/no accident classification and the preferred sole media source ($\underline{C}$ = 0.080, $\chi^2(4)$ = 0.801, $p > 0.05$).

TABLE 20. RESPONSES OF BOATERS WITH AND WITHOUT ACCIDENT HISTORIES TO THE QUESTION: "SUPPOSE THAT YOU COULD CONTINUE TO HAVE ONLY ONE OF THE FOLLOWING WAYS OF GETTING INFORMATION. WHICH ONE WOULD YOU MOST WANT?"

SOURCE	ACCIDENG GROUP	NO ACCIDENT GROUP	TOTAL
Newspapers	21 (35%)	19 (30%)	40 (33%)
Television	18 (30%)	23 (37%)	41 (33%)
Radio	5 (8%)	4 (6%)	9 (7%)
Magazines	7 (12%)	7 (11%)	14 (11%)
Friends	9 (15%)	10 (16%)	19 (15%)
TOTAL	60 (100%)	63 (100%)	123 (100%)
Missing	0	3	3

Items Five through Eight pertained to sources for boating information. The choices presented here were necessarily different than for Items One through Four, reflecting the fact that boating information is often available from specialized sources other than the mass media. "Informed people" was specified in the questionnaire as including such resources as marina operators, boating equipment dealers, and friends with boating experience. The "other" category was provided for fill-in responses, and results included "Coast Guard books," "father," "father-in-law," "husband," "scouting," "Red Cross," and "Coast Guard Training." Item Five asked the boaters where they get most of their information about boating/boating safety. The majority of all respondents (57%) listed either "informed people" or "boating media," as the sources of most of their boating information. Note that the data in Table 21 are very different from parallel data in Table 17 for the most frequently or heavily used source of general information. For boating information, radio and television account for only 6% of the data, while they account for 47% of the data for general information. The data in Table 21 indicate no association between the accident/no accident classification and the source of most boating information for the respondents ($\underline{C} = 0.155$, $\chi^2(5) = 2.653$, $p > 0.05$).

TABLE 21. RESPONSES OF BOATERS WITH AND WITHOUT ACCIDENT HISTORIES TO THE QUESTION: "NEXT, WOULD YOU TELL US WHERE YOU GET MOST OF YOUR INFORMATION ABOUT BOATING/BOATING SAFETY?"

SOURCE	ACCIDENT GROUP	NO ACCIDENT GROUP	TOTAL
Radio and TV	2 (4%)	4 (7%)	6 (6%)
Informed People (See Text)	17 (33%)	19 (33%)	36 (33%)
Boating Media	13 (26%)	13 (23%)	26 (24%)
Boating Brochure	2 (4%)	6 (11%)	8 (7%)
Formal Organizations	11 (22%)	9 (16%)	20 (19%)
Other (See Text)	6 (12%)	6 (11%)	12 (11%)
Total	51 (100%)	57 (100%)	108 (100%)
Missing	9	9	18

137

Item Six asked the boaters which source would be most believable in the case of several conflicting or different versions of information concerning boating. The results are presented in Table 22. There was a strong overall preference (61%) for formal organizations (e.g., Coast Guard Auxiliary and Power Squadron). The next most often chosen source was informed people (24%). The only "other" source that was mentioned was the Red Cross. The data in Table 22 are in sharp contrast to the data in Table 18 for the believability of general information from television and radio. For general information, radio and television account for 45% of the "most believable" data, while accounting for only 3% of the data for boating information. No association was indicated between the accident/no accident classification and the believability response categories ($\underline{C} = 0.112$, $\chi^2(5) = 1.525$, $p > 0.05$).

TABLE 22. RESPONSES OF BOATERS WITH AND WITHOUT ACCIDENT HISTORIES TO THE QUESTION: "IF YOU GET CONFLICTING OR DIFFERENT INFORMATION CONCERNING BOATING/BOATING SAFETY, WHICH VERSION WOULD YOU BE MOST LIKELY TO BELIEVE?"

SOURCE	ACCIDENT GROUP	NO ACCIDENT GROUP	TOTAL
Radio and TV	2 (3%)	1 (2%)	3 (3%)
Informed People	13 (22%)	15 (25%)	28 (24%)
Boating Media	5 (9%)	5 (8%)	10 (8%)
Boating Brochure	2 (3%)	2 (3%)	4 (3%)
Formal Organizations	35 (60%)	38 (62%)	73 (61%)
Other (See Text)	1 (2%)	0 (0%)	1 (1%)
Total	58 (100%)	61 (100%)	119 (100%)
Missing	2	5	7

Item Seven asked boaters which of the several possible media versions of the boating information they would be the least likely to believe in case of conflicting information. Their responses indicated that radio and television versions of boating information are less believable than other versions (44%). This figure is in sharp contrast to the same question for general information (see Table 19), where the combined percentage for radio and television was only 18%. Apparently, the respondents felt that radio and television information concerning boating is (relatively) less believable than is general information. Informed people were also rather poorly rated here, being viewed as the least believable source of boating information by 24% of the respondents. Of the choices specified in the questionnaire, formal organizations was least often cited as having poor credibility. The data in Table 23 indicate no association between the accident/no accident classification and the least believable source of boating information ($\underline{C} = 0.247$, $\chi^2(5) = 7.653$, $p > 0.05$).

TABLE 23. RESPONSES OF BOATERS WITH AND WITHOUT ACCIDENT HISTORIES TO THE QUESTION: "WHICH OF THE VERSIONS WOULD YOU BE LEAST LIKELY TO BELIEVE?"

SOURCE	ACCIDENT GROUP	NO ACCIDENT GROUP	TOTAL
Radio and TV	22 (39%)	30 (49%)	52 (44%)
Informed People	13 (23%)	15 (25%)	28 (24%)
Boating Media	8 (14%)	5 (8%)	13 (11%)
Boating Brochure	5 (9%)	9 (15%)	14 (12%)
Formal Organizations	6 (11%)	1 (2%)	7 (6%)
Other (See Text)	3 (5%)	1 (2%)	4 (3%)
Total	57 (100%)	61 (100%)	118 (100%)
Missing	3	5	8

Finally, Item Eight asked the boaters which source of boating information they would most want to retain if they could retain only one. A majority of respondents expressed a strong preference for formal boating organizations on this question (59%), and some preferred to maintain connections with informed people (22%). These data contrast sharply with similar data for general information, where newspapers and television were preferred by 40% of the respondents as sources of general information. For boating information, television and radio together accounted for only 3% of the responses. The data are presented in Table 24. There was no significant association between the accident/no accident classification and the preferred sole source of boating information ($\underline{C} = 0.187$, $\chi^2(5) = 4.367$, $p > 0.05$).

To summarize these findings, whether or not a boater has been involved in an accident has no systematic effect on his use of, or preference for, media sources, either for general information or for boating information. Television received overall high marks as a source of general information, with newspapers a close second, except that newspapers were less likely to be believed in case of conflicting information. Where boating information was specified, however,

TABLE 24. RESPONSES OF BOATERS WITH AND WITHOUT ACCIDENT HISTORIES TO THE QUESTION: "SUPPOSE THAT YOU COULD DETERMINE TO HAVE ONLY ONE OF THE FOLLOWING WAYS OF GETTING BOATING/BOATING SAFETY INFORMATION. WHICH ONE WOULD YOU MOST WANT?"

SOURCE	ACCIDENT GROUP	NO ACCIDENT GROUP	TOTAL
Radio and TV	2 (3%)	2 (3%)	4 (3%)
Informed People	17 (29%)	10 (16%)	27 (22%)
Boating Media	6 (10%)	9 (15%)	15 (12%)
Boating Brochure	2 (3%)	1 (2%)	3 (3%)
Formal Organizations	32 (54%)	39 (63%)	71 (59%)
Other (See Text)	0 (0%)	1 (2%)	1 (1%)
TOTAL	59 (100%)	62 (100%)	121 (100%)
Missing	1	4	5

television was rarely mentioned as a source. Instead, "informed people" was the biggest source used, with boating media second; but neither was rated very highly as being credible in conflict situations, or as preferred sole sources. Instead, formal organizations were by far the most often chosen as being credible and desirable.

140

3.0 PART TWO - PROTOTYPE EDUCATIONAL PROGRAM FOR MAJOR BOATING ACCIDENT TYPES

The prototype educational program presented in this section is the result of a multi-faceted effort. Guidelines for preparation of message content were provided by precise analysis of collision and loading related accident data. The analysis for each accident type was carried out using similar procedures:

Step 1: Identification of accident causes (initiators) having highest accident rate and fatality rate (to provide for a cost effective program). Data bases for the analyses were samples of boating accidents taken primarily from the years 1969 and 1973.

Step 2: Identification of human factors associated with accidents (factors were not considered the origin of the accidents but were conditions present during or preceding a high number of accidents and fatalities).

Step 3: Screening major accident causes to determine where educational intervention would likely have prevented the occurrence of the accidents or fatalities.

Step 4: Identification of demographics and other salient characteristics of recreational boaters based upon Coast Guard statistics and a small exploratory study of attitudes and media preferences.

Step 5: Determination of educational program objectives and message content using actual boat operator alternative actions to those taken that caused accidents in the cases analyzed.

Step 6: Selection of media, educational methods, and production format for message content, using to a large extent, background information from Subtasks 1, 2, 3, and 4 of this project.

Step 7: Assembly and coordination of various production messages for a prototype educational program.

The first six steps for development of the projects are reported in two separate Coast Guard documents: Pleasure Boat Collision Accident Education, 1978 and Pleasure Boat Loading Related Accident Education, 1978. Part II of this report is largely a reiteration of the educational programs developed in those two reports. Both collision and loading related accident programs are presented within one coherent boater educational program in this report, and they would likely be conducted as a "one in the same" program.

3.1 Educational Objectives and Message Content for Prototype Program - Collision and Loading Related Accident Education Combined

Eleven educational objectives were produced from the analyses of boating accident cases.* Three different objectives were identified for the collision accidents; seven objectives were identified for the loading related accidents; and one objective was identified collectively for several associated human factors from analysis of the collision data base.

Message content for implementing each of the educational objectives was developed primarily using the accident scenarios themselves, and from the array of operator alternatives used to specify the objectives. The actual content given for the messages consists of information that is necessary to implement the educational objectives, and was specified by the principal investigator for the projects.

The objectives and message content generated for the program are presented in Table 25. Note that the message content in the table does not refer to actual information for dissemination to the recreational boater public. Information intended for dissemination is given in production messages discussed in the next section.

---

* The preparation of educational objectives for the boating accidents required two steps. First, reports of boating accidents used previously to identify the major collision and loading related accident causes were reviewed once again. Each person working at the task of reviewing the accidents received a booklet consisting of instructions for the task, and a group of the reports of the boat accidents. Each report was to be read individually, and the reader then identified plausible operator decisions and/or actions that would have prevented the accident or reduced its severity within the conditions of the accident's occurrence. The second step in the preparation of the educational objectives was reduction of the most frequently occurring action and decision alternatives given for the accidents into a smaller number of more general statements. Three persons with experience in content analysis procedures participated in these judgments (E. Sager [principal investigator], J. Berman, and J. Murray [consultants]).

An effort was made to identify two kinds of statements for each major accident initiator pertaining to how the accident could have been avoided and how resulting fatalities could have been prevented. Each of the statements in the reduced list was then rephrased to an "infinitive phrase" statement, i.e., a form consistent with behavioral objective format.

TABLE 25. OPERATIONAL OBJECTIVES AND MESSAGE CONTENT FOR BOATING ACCIDENT EDUCATIONAL PROGRAM

OBJECTIVES - COLLISION AVOIDANCE	MESSAGE CONTENT
• To inform or remind boaters of their obligations with respect to rules of the road and with effective display of navigation lights and accurate recognition of others; • To remind and instruct boaters on how to read accurately various navigation aids located in channels, rivers, etc.	• Content will be directed to rules of the road and consequences of non-compliance with rules of the road. In addition, the boater will be reminded of his obligation to display navigation lights, how to recognize displayed navigation lights on vessels and use of other displayed navigation aids. The presentation will involve highly visualized situations where the boaters will be challenged to determine correct interpretations of lights and aids.
• To maximize the boater's alertness to the total boating environment (i.e., awareness of the boat's position, other boater's course and speed, and the boater's own course and speed).	• Content will be directed to the maintenance of operator discipline during all boat operating situations. This includes dimensionalizing (segmenting) aspects of operator attentiveness, i.e., boat's position, other boaters' course and speed, and boater's own course and speed. Representative case histories of accidents will be presented with focus upon the consequences of operator inattention. Suggestions for how to remain alert will be given by "experts." Encouragement will be given for experimentation with avoidance maneuvers for alternative action in the event of marginal or eminent collision situations. This would normally include knowledge of the limitation and strengths of one's own boat, and mental rehearsal of alternatives very early in potential collision situations.

TABLE 25. OPERATIONAL OBJECTIVES AND MESSAGE CONTENT FOR BOATING ACCIDENT EDUCATIONAL PROGRAM (continued)

OBJECTIVES - LOADING-RELATED AVOIDANCE	MESSAGE CONTENT
• To maximize boaters' alertness to exceptional wave and wake conditions relative to freeboard and stability of their boat.	• Content will be directed to identifying the nature of the loading related accidents initiated by waves or wakes including statistical outcomes of past accidents. This may take the form of indicating the boaters' chances of survival given national or regional statistics. However, the emphasis will be on ways in which the accidents can be avoided. Information will address: 1) alertness to exceptional wave or wake conditions, 2) attentiveness to water and weather conditions prior to and during boating, 3) instructions in ways to determine freeboard and stability of boat, and 4) rapid recognition of exceptional wave or wake conditions relative to the boat.
• To increase boaters' speed of reaction and precision of execution for maneuvers in reacting to exceptional wave and wake conditions.	• Content is to be directed to providing instruction on execution of adaptive maneuvers for quartering the bow of the boat into on-coming waves or wakes and for making the appropriate power settings, etc. Information will employ highly visual materials that are oriented to the boaters' perspective (in order that transfer from the message reception situation to the actual boating crisis situation is facilitated).
• To encourage boaters to determine the stability of their boat during safe shore side situations.	• Content is directed to manufacturers' means for determining stability for various boats. Emphasis here will be on safe and risk free ways the boaters can estimate the ways in which their boat will react under various water and wind conditions.

TABLE 25. OPERATIONAL OBJECTIVES AND MESSAGE CONTENT FOR BOATING ACCIDENT EDUCATIONAL PROGRAM (continued)

OBJECTIVES - LOADING-RELATED AVOIDANCE	MESSAGE CONTENT
• To inform boaters of appropriate ways in which to change from one position to another in a small boat.	• Content will address the nature of the loading related accident initiated by load shifts, including seriousness of accidents caused by person's movement in the boat. Emphasis on instruction will be methods for thoughtful and skillful movement of persons within small recreational boats. Information will concern: 1) the effects of persons standing up on the small boat's roll stability with respect to raising the center of gravity, 2) loading of the boat to provide walkways on the longitudinal axis of the boat flooring for use while moving about in the boat, 3) providing ways in which a boater can determine how stability axes of his boat are influenced by various loading distributions and load amounts. The boaters will be encouraged to experiment with load distribution and load amounts (not to exceed those of capacity plate recommendations) to experience the actual margins and limits of the boat's stability.
• To encourage boaters to determine the stability dynamics of their own boats, and to limit the operation of their boat to limits well within the margins of safety.	• Content will be directed to identifying traditional methods for achieving stable and balanced loading of small recreational boats. Material covered will include: 1) aspects of boat stability, 2) recognition of the freeboard of the boat, 3) considerations for hoving anchor or retrieving objects from the water, 4) effects of center of gravity on roll stability, and 5) margins of safe loading according to effects on boat stability and according to limits given on capacity labels.

TABLE 25. OPERATIONAL OBJECTIVES AND MESSAGE CONTENT FOR BOATING ACCIDENT EDUCATIONAL PROGRAM (continued)

OBJECTIVES - RECOVERY OF ALL PERSONS	MESSAGE CONTENT
• To encourage thoughtful ownership and use of PFDs for the boater.	• Content will deal with the advantages and limitations of each type of PFD. These advantages and limitations will be specific to the use of the PFDs in terms of: 1) convenient and accessible stowage; 2) instructions for use and for donning PFDs; 3) encouragement of boaters to don their own PFDs in simulated crisis conditions; and 4) providing the boater with instructions as to how to determine if his boat has maximum, adequate, or insufficient PFD protection.
• To stimulate resourceful thinking during the decision of the boater and others on board to remain with a swamped or capsized boat.	• Content will deal with the advantages and dangers of remaining with a swamped or capsized boat after an accident. Specific information will be given for: 1) equipment to carry in order to signal for assistance, to provide handholds and additional flotation, etc., that will provide assistance for persons in the water who are remaining with the distressed vessel; 2) how to determine actual distance or best estimated distance from shore in the event that the stricken boat sinks or assistance is unavailable; 3) the deleterious effects of water temperature, wind conditions, and water conditions while in the water or attempting to swim to shore; 4) if attempt to swim for shore is made, to take some form of flotation on the trip; and 5) the need to have a rehearsed plan of response to a loading related accident.

TABLE 25. OPERATIONAL OBJECTIVES AND MESSAGE CONTENT FOR BOATING ACCIDENT EDUCATIONAL PROGRAM (concluded)

OBJECTIVE - ASSOCIATED FACTORS	MESSAGE CONTENT
• To call boaters' attention to the fact that there are several factors aside from actual causes of accidents that can contribute to the occurrence of an accident and that also can increase the severity of injury and likelihood of fatalities.	• Content will be directed to informing boaters of the contribution of associated human factors to the increased likelihood of occurrence of accidents, and possible resulting injuries or deaths. Information will include identification of the nature of each of these factors and the visualized consequences of exceeding the limits of these factors. It will be visually demonstrated that these factors influence the accident when they interact with marginally hazardous situations.

3.2 Selection of Educational Materials (Media and Production) and Delivery Systems for Developing and Disseminating Messages

The choice of materials and delivery systems selected for implementing the educational objectives was based upon their known performance characteristics in previous advertising and public service campaign efforts. Because each objective and corresponding message content had unique requirements for execution, each required a separate evaluation for determining how to present the information. Each objective and the corresponding content was evaluated according to four areas of judgment:

- the complexity or nature of information to be communicated in the respective message(s)
- the identity of the group of boaters who would most benefit from the message(s)
- the specific environment in which the messages were to be received, e.g., in a formal boating class, at home watching television, etc.
- cost of production, broadcast, or publication

Evaluation was made by E. Sager (principal investigator), J. Berman, and J. Murray (consultants).

3.3 Resources for Delivering the Educational Program to the Recreational Boater Public

The resources for delivering an educational program to boaters consist of three general groups of alternatives:

1. educational methods (i.e., lecture, conference or group discussion, case study, role playing, simulation or structured experience [laboratory training], games and programmed instruction [see Section 2.3]).
2. media and productions of messages (i.e., television spots, radio spots, pamphlets, newspapers, magazine articles, outdoor advertising, and advertising specialties [see Section 2.4])

3. systems for delivery of the program (i.e., mass media - print and electronic; formal boating courses - Coast Guard Auxiliary and Power Squadron; Coast Guard visitation and vessel boarding; and home study materials for the boater)*

The various media and message production alternatives for delivery of a boater educational program are presented in the following section. They are organized within the four major delivery systems, i.e., mass media, etc. All reasonable media for use in an extensive boater educational program are given. However, the specific educational materials produced for the illustration part of the prototype program do not make exhaustive use of these alternatives. Instead, media, production messages, and delivery systems were selected in order to provide a wide variety of illustrative materials.

3.3.1 Delivery System 1 - Utilization of Mass Media (Print and Electronic Format)

The use of mass media is directed to two principal purposes: instruction of boaters, and announcements to boaters concerning the availability of additional instructional information, such as the dates and time for conduct of a local Power Squadron course. Media and production which can be used for an educational program are presented below in tabular form.

Pamphlets: consisting of single concept pamphlets dealing with aspects of collisions and loading related accidents, and factors associated with high risk for all accidents; materials are instructional in nature; provide factual information about boating, and suggest ways to increase one's skill in competent operation of boats. Distribution of the series of pamphlets could be accomplished by eight different means:

1. point of purchase displays at boating supply stores, beverage stores in geographic areas where recreational boating is extensive, and at fishing bait shops or hunting supply stores.

---

* A fifth delivery system suggested is the in-plant industrial safety program directed to employees who are recreational boaters. An in-plant industrial safety program could very easily serve as an agent for 1) dissemination of printed educational materials, 2) announcing the conduct of various boating courses taught by the Coast Guard Auxiliary or Power Squadron, and/or 3) conduct of an actual in-plant course by employees with extensive experience in boating. The illustrative educational program did not include materials explicited developed for encouraging or for conducting an in-plant program. However, all materials made available for formal boating courses would probably also apply to special in-plant programs involving classes.

2. to accompany registration materials for boat licensing, fishing licensing, and hunting licensing; banks granting boat loans.
3. Coast Guard Booth for display at Boating Trade Shows or boating competition events.
4. to accompany insurance policies that are purchased for boats.
5. to be distributed at boating and yachting clubs; boating and sailing schools.
6. direct mail sent to a sample of boaters; individual persons receiving materials are chosen from subscriber lists of boating magazines.
7. to be sent on request to individual boaters by the Coast Guard.
8. materials distributed within formal boating courses such as Coast Guard Auxiliary, Power Squadron, Red Cross, Boy Scouts, etc.

Newspapers: consisting of a variety of printed materials some of which are instructional and some of which are intended only to remind boaters of prior instruction, or of the availability of additional instructional information. Seven alternative uses of the newspaper medium are possible:

1. information is sent intermittently by Coast Guard to staff columnists who prepare a regular boating column; staff columnists interpret the message locally, and support the educational program for reduction of collision and loading related accidents; staff columnists are encouraged to follow guidelines for the basic approach and style adopted for the overall educational program.
2. advertising space is purchased by Coast Guard or local boating organization for repetitive single concept materials; purpose is to stimulate recall of prior messages from the overall educational program; sports section is preferred for placement; messages are professionally prepared.
3. filler material is prepared by educational program specialists, and is submitted to various newspapers in high boating accident areas; filler concerns collision and loading related accident avoidance and recovery information; this material is published when space is available; "filler" information includes both instructional items and reminder items of previously presented material.

4. press release intermittently given to local sports editors dealing with the running and progress of the educational program; releases are intended to identify the program and keep it in the forefront of boaters' awareness.

5. "magazine" supplement inserted in Thursday's daily newspaper on a one time or serial basis per boating season; supplement consists of two or three critical collision or loading related concepts in programmed instruction format, highly visual in implementation, with recreational tone.

6. develop or encourage adaptation of a personal experience column to appear weekly in sports sections; message content stresses personal accounts of near or close calls with detailed reiteration of effective actions and decisions that prevented fatalities, injuries, or minimized property damage. The potential for personal experience as a vehicle for education is explored in a small scale attitude study reported in Section 6.1 of the Pleasure Boat Loading Related Education final report.

7. develop or refine a "question and answer" formal *feature* that focuses upon most frequently occurring types of accidents; emphasis should be on regional rather than local boating to enable the presentation of several genuine questions per feature.

Magazines: consisting of a variety of printed materials some of which provide instruction for boaters, some of which are intended to remind boaters of prior instruction, and some of which identify the availability of instructional information. At least five alternatives are possible:

1. provide short features in dealer oriented magazines (e.g., *Boat and Motor Dealer*, and *The Boating Industry*) identifying the new educational effort including the intentions and methods; provide useable information to be passed on to customers.*

2. insert instructional features in major airline passenger magazines; content may be modified programmed instruction in form and method (e.g., *Mainliner* for United Airlines and *Sky* for Delta Airlines).

---

* In the local media preference study, the category of "informed people such as marina operators," etc. was preferred as the second major source of boating instruction. Given the apparent credibility and desirability of this group, it seems plausible that they could be *cultivated* as responsible information agents in the educational program.

3. advertising space purchased by Coast Guard or local boating organization for repetition of prior educational messages as in newspaper utilization.

4. develop or encourage adaptation of existing "question and answer" features in magazines oriented toward the boating consumer, as in newspaper utilization; information should encourage use of sound boating practices and procedures.

5. develop features on personal experience, some of which might be taken from files of BARs with appropriate "masking" identification of actual persons involved; as in newspaper utilization.

Outdoor Advertising: consisting of purchase of several 24 and/or 30 sheet poster panel buys*; purchased poster panels should be located on roadways in higher boating accident areas; exposure should be during boating season; designed for facilitating recall of prior educational messages.

Transit Advertising: consisting of purchase of poster panels for vehicles such as commuter buses and trains; panel design is identical to that for outdoor advertising poster panels: intended to elicit recall of prior educational messages.

Television: consisting of a variety of productions, some of which concern announcements about instructional opportunities (e.g., Coast Guard Auxiliary or Power Squadron boating courses); some of which are actually instructional; and some of which are only for facilitating recall of previously learned material:

1. a series of instructional spot messages, each of which is single concept in scope and intent; time length 30 seconds each; messages are professionally produced and shown as public service announcements (PSAs).

2. a series of animated educational logos designed to accompany and complement televised boater instructional and printed information; these are intended for local use and should be "tagged" by local boating organizations; "voice-overs" or the audio track can be made at the local station, and they should be shown during station break times as PSAs; maximum time length, 10 seconds.

---

* Single panel buys placed strategically along highways are an alternative to group purchases involving several panels (panels are placed to saturate a given area). For the usual group purchases the messages are intended to reach a more general population than the recreational boater.

3. press releases given intermittently to local sports broadcasters concerning the running and progress of the educational program; releases are timed to coincide with accelerations of print media distribution, with showings of 30 second spot messages, and with announcements about the conduct of formal boating courses.

Radio: consisting of spot announcements about instructional opportunities (e.g., Coast Guard Auxiliary or Power Squadron boating courses) and reminders of key points for recall of prior educational messages; each message is single concept in scope and intent; time lengths are 10 seconds and 30 seconds; messages are professionally produced and nationally distributed.

3.3.2 Delivery System 2 - Utilization of Formal Boating Courses*

The success of accelerated use of the formal boating courses in the educational program is dependent upon competent instructors who have access to high quality educational support materials. Recommended materials include the following items:

Pamphlets: consisting of the same series of single concept pamphlets used for mass media distribution; the complete set of pamphlets should be distributed or made available during the conduct of the boating course; the complete set can serve as a reference text.

Moving Picture Films: consisting of two approaches for use of films in boating instruction: 1) one or two 16 mm films approximately 20 minutes in length;** each film deals with a single concept that addresses major types of accidents; each film is to be professionally produced by a company with extensive experience in training films; prints of the film are to be made available to various Power Squadron courses, Coast Guard Auxiliary courses, etc., on a regular basis (at their request) so that course units can be planned around their use; 2) encouragement of local course instructors to experiment with Super 8 regular film or cassette cartridge film for presenting localized information visually; Super 8 film on reels or in cartridges can be purchased fairly reasonably at bulk purchasing rates; planning and shooting instructional manuals are available (Reference 14). Super 8 cameras and projectors are readily available for use from members of the organizations

---

* All materials produced for distribution within the framework of formal boating courses could also be used in conjunction with an industrial safety program sponsored by an individual company for its employees.

** Twenty minutes of time when students are not directly interacting with the class instructor should not seriously detract from the student's concentration on material presented afterward in the continuation of the lecture.

sponsoring the courses (see the Hope Reports, Video II, on camera and video equipment distribution in various segments of the national population, Reference 15).

35 mm Slide Presentations: consisting of a series of single concept slide shows of about 40 slides each; intent of the slide shows is threefold: to conduct instruction for complex informational materials, to develop desirable attitudes toward competent operation of boats, and to present alternatives for developing of skill for competent operation of boats; preparation of three versions of each show are possible; shows are to be circulated among local organizations sponsoring boating courses at their request; use of each show is to provide high quality visual instructional materials to supplement conventional lectures used in various course units; the alternative versions for the slide shows are:

1. 40 slides consisting of photographic and special title/graphic slides in carousel magazine; magazines for circulation are not sealed so the sponsoring boating organization can put in their own identification slide for the presentation ("tag" slide); with "tone cueing" from accompanying audio cassettes; audio supplemental message is provided and no participation is required on the part of the course instructor to show the slides.
2. 40 slides prepared as above; audio supplemental message is provided on cassette tape and is accompanied by printed script; course instructor is required to follow along with the audio track and to manually advance slides at appropriate times indicated on printed script.
3. 40 slides prepared as above, distributed with suggested printed script only; instructor is required to deliver verbal information in lecture and to manually advance slides at appropriate times (preferred method for maintaining attention and participation of class members).

Video Tape Recording (VTR): one 30 minute tape each consisting of instructor briefing for the presentation of the instructional unit (one evening's presentation), and including a review of all materials for the unit; information included on the tape recommends how to best structure the evening's activities, how to present the various visual aids, options available for the unit (developed for the loading related educational program), and how to maximize class members' participation; VTRs are professionally produced and distributed to local organizations sponsoring regular boating courses *at their request;* VTR format recommended in 1/2 inch tape for use on widely available Sony 3600 series VTR playback units.

3.3.3 Delivery System 3 - Utilization of Visitation and Vessel Boarding Programs

The same basic instructional and audio/visual materials should be made available during formal lectures at school visits, at special events such as regatas, or at special workshops given by universities, boating clubs, etc.

Pamphlets: consisting of the same series of single concept pamphlets used for mass media distribution, and "in class" distribution; in this delivery system, pamphlets are to be selectively distributed, i.e., instructional content for the particular pamphlets given out should reflect locally frequent accidents or should relate to the intentions of the visitation or boarding.

Advertising Specialties: consisting of an assortment of selected items; as a representative sample, the following suggestions offer potential for distribution to recreational boaters.

1. floating key chains with an imprint of the small boat/runabout education logo;* one version of the key chain might also include the reminder to "Stay With It"; identification of the floating characteristic of the key chain with resourceful survival strategies following an accident is intended.
2. imprints of the educational logos are suggested for various accessories likely to be useful to the boater (e.g., resealable bottle caps, a strategy having precedent in some of the more progressive traffic highway safety programs); the intention here is to remind the boater that he is obligated to use alcohol in moderation, if at all, while operating his craft.
3. first aid kits and bandage dispensers imprinted with various education topical logos; the association of the educational program directly with safety related equipment and concepts is recommended; however, this should be done in a way that demonstrates the intentions of the program go beyond safety and first aid.

---

* See Appendix M and/or the video tape supplement to this report for a presentation of the illustrative program logos.

4. the production of highly reflective materials in the form of educational logo stickers; they offer great flexibility for use by boaters and can be related to several messages in the educational program; when fastened to equipment such as oars, paddles, bailers, etc., these stickers facilitate locating the items in the dark; the assistance provided in locating certain items in the aftermath of an accident might help the boater to stabilize the crisis situation.

5. pencil clips endorsed with an assortment of educational program logos; they assist in identifying the broad scope of the educational program; in fact no recreational boater is beyond the intentions of this program regardless of his experience or the size of his boat; the pencil clips are intended for use on larger craft where course plotting is required or where fuel consumption must be carefully calculated.

3.3.4 Delivery System 4 - Utilization of Home Study

The development of a systematic home study plan consists of a series of materials designed to complement other delivery systems. The materials should include the following items:

1. a separate series of single concept pamphlets adapted for home study use
2. programmed learning texts or magazine inserts in newspapers (see Mass Media Delivery Systems, Section 3.3.1)
3. conventional television programming using the approach employed in the "National Boating Test" sponsored by Johnson Outboard Motor Co.; or local television station production of various accident related aspects of boating in a local area.

3.4 Illustrative Collision and Loading Related Educational Program

The selected media and production messages, and delivery systems are presented in tabular form in Table 26. The illustrative collision and loading related educational programs were assembled from the various production media alternatives and delivery systems. They are presented with the corresponding educational objectives for the collision and loading related accidents. As was stated earlier, production messages are the executions of message content specified in Table 25. The rationale for selections made concerning media production and delivery systems are also discussed in tabular form, and are presented in Table 27.

101

TABLE 26. OBJECTIVES, PRODUCTION MESSAGES AND MEDIA, AND DELIVERY SYSTEMS FOR ILLUSTRATIVE EDUCATIONAL PROGRAM

OBJECTIVES - COLLISION AVOIDANCE	PRODUCTION MESSAGES AND MEDIA	DELIVERY SYSTEM
• To inform or remind boaters of their obligations with respect to rules of the road and with effective display of navigation lights and accurate recognition of others.	1) Television Spot (30 sec.) using animation to dramatize a situation having educational value for avoiding collision accidents; script provides a problem situation for which the solution is not given; viewer must call a telephone number for an answer and a recorded message stating when next USCG Auxiliary course is taught in the area; visual and verbal strategy maximizes viewer's action/participation in receiving the message*. 2) Television Spot (10 sec.) using computer animation with locally produced audio track and tag*: - Rules of the road, consequences for non-compliance, display of navigation lights, and accurate recognition are materials to be taught within the formal organized class, although the problem situation for the spot may be taken from them.	• Electronic Mass Media

* An illustrative production message was completed for this project. See video tape supplement for this report and the repository of materials.

TABLE 26. OBJECTIVES, PRODUCTION MESSAGES AND MEDIA, AND DELIVERY SYSTEMS FOR ILLUSTRATIVE EDUCATIONAL PROGRAM (continued)

OBJECTIVES - COLLISION AVOIDANCE	PRODUCTION MESSAGES AND MEDIA	DELIVERY SYSTEM
	3) 35 mm Slide Show (40 slides) explaining navigation light display for different classes of boats, and interpretation of navigation light configurations; all photos and art work are "point of view" of operator; extensive use of visualization, and question and answer format.* 4) Single Concept Pamphlet for rules of the road; extensive visualization and use of programmed instruction method and layout (alternative production is textbook).	• Formal Boating Course (Coast Guard Auxiliary, etc.)
• To remind and instruct boaters on how to read accurately various navigation aids located in channels, rivers, etc.	1) 35 mm Slide Show (40 slides) explaining the systems of piloting aids (one show for each set of rules, e.g., Great Lakes); all photos and art work are "point of view" of operator; extensive use of visualization; question and answer format to maximize participation of audience*. (Example show does not use point of view method except for mid-channel buoy slide.)	• Formal Boating Course

---

* An illustrative production message was completed for this report. See video tape supplement for this report and the repository of materials.

TABLE 26. OBJECTIVES, PRODUCTION MESSAGES AND MEDIA, AND DELIVERY SYSTEMS FOR ILLUSTRATIVE EDUCATIONAL PROGRAM
(continued)

OBJECTIVES - COLLISION AVOIDANCE	PRODUCTION MESSAGES AND MEDIA	DELIVERY SYSTEM
• To maximize the boater's alertness to the total boating environment (i.e., awareness of the boat's position, other boater's course and speed, and the boater's own course and speed).	1) 16 mm Film (20 min.) demonstrating the need for maintenance of operator discipline during all boat operating situations; film is to employ "point of view" visualization; expert professional production is imperative since objective is largely attitudinal in nature (i.e., strategies for maintaining operator discipline require positive valuing of the behavior).	• Formal Boating Course
OBJECTIVES - LOADING RELATED AVOIDANCE		
• To maximize boaters' alertness to exceptional wave and wake conditions relative to freeboard and stability of their boat.	1) Newspaper Boating Column: give press kit or information to established boating columnists (1200 regular or seasonal columns available). 2) Newspaper Filler consisting of short items in completed form.	• Print Mass Media
	3) 35 mm Slide Show on boat stability (roll): will include theory for hull design and righting arm; insert spaces for slides of boats having the various	• Formal Boating Course (USCG Auxiliary, etc.)

TABLE 26. OBJECTIVES, PRODUCTION MESSAGES AND MEDIA, AND DELIVERY SYSTEMS FOR ILLUSTRATIVE EDUCATIONAL PROGRAM
(continued)

OBJECTIVES - LOADING RELATED AVOIDANCE	PRODUCTION MESSAGES AND MEDIA	DELIVERY SYSTEM
	hull designs and types of boats in the local area (inserted by local class instructors). 4) (Optional) Single Concept Pamphlet for each type of hull (will include photos from the slide show) and serve as take home material from class (alternative is textbook).	• Formal Boating Course • Home Study
OBJECTIVES - LOADING RELATED AVOIDANCE		
• To increase boaters' speed of reaction and precision of execution for maneuvers in reacting to exceptional waves and wake conditions.	1) 35 mm Slide Show and/or 16 mm Film 2) Magazine Features* published in boating, fishing, or hunting magazines; also airline magazines	• Formal Boating Course • Print Mass Media
• To encourage boaters to determine the stability of their boat during safe shore side situations.	1) Television Spot (10 sec.) using computer animation with locally produced audio track and tag* 2) Newspaper Boating Columnists: give press kit or information to established boating columnists	• Electronic and Print Mass Media

---

* An illustrative production message was completed for this project. See video tape supplement for this report and the repository of materials.

TABLE 26. OBJECTIVES, PRODUCTION MESSAGES AND MEDIA, AND DELIVERY SYSTEMS FOR ILLUSTRATIVE EDUCATIONAL PROGRAM (continued)

OBJECTIVES - LOADING RELATED AVOIDANCE	PRODUCTION MESSAGES AND MEDIA	DELIVERY SYSTEM
	3) Magazine, or 4) Single concept pamphlet (Alternative is textbook)	• Mass Media Point of Purchase Display; Formal Boating Course, Home Study
• To inform boaters of appropriate ways in which to change from one position to another in a small boat.	1) Newspaper Insert: Sunday supplement format in newspaper delivered on Thursday; home study course in serial or complete form; combination of programmed instruction; case study	• Home Study via mass media
• To encourage boaters to determine the stability dynamics of their own boat, and to limit the operation of their boat to limits well within the margins of safety.	1) Single Concept Pamphlet* (very basic orientation) (alternative is textbook)	• Print Mass Media - distribute at point of purchase display; • Formal Boating Course
OBJECTIVES - RECOVERY OF ALL PERSONS		
All Initiators • To encourage thoughtful ownership and use of PFDs for the boater.	1) Magazine Feature: state-of-the-art on PFDs published in boating enthusiast magazines* 2) Outdoor Advertising	• Electronic and Print Mass

* An illustrative production message was completed for this project. See video tape supplement for this report and the repository of materials.

TABLE 26. OBJECTIVES, PRODUCTION MESSAGES AND MEDIA, AND DELIVERY SYSTEMS FOR ILLUSTRATIVE EDUCATIONAL PROGRAM (concluded)

OBJECTIVES - RECOVERY OF ALL PERSONS	PRODUCTION MESSAGES AND MEDIA	DELIVERY SYSTEM
	3) Television Spot (10 sec.) using computer animation with locally produced audio track and tag*	
• To stimulate resourceful thinking during the decision of the boater and others on board to remain with a swamped or capsized boat.	1) Super 8 mm (local productions by boating course instructor)* 2) Script given to local TV station for production using their facilities; includes information from special press kit 3) Radio Spot * (30 sec.) 4) Outdoor Advertising* 5) Television Spot (10 sec.) Computer Animation	• Formal Boating Course • Print Mass Media
OBJECTIVE - ASSOCIATED FACTORS		
• To call boaters' attention to the fact that there are several factors aside from actual causes of accidents that can contribute to the occurrence of an accident and that also can increase the severity of injury and likelihood of fatalities.	1) Outdoor Advertising 2) Advertising Specialties*: (floating key chains, band-aid dispensers, plastic beverage glasses, etc.) 3) Newspaper Filler 4) Radio Spot * (30 sec.)	• Electronic and Print Mass Media • Visitation and Vessel Boarding

* An illustrative production message was completed for this project. See video tape supplement for this report and the repository of materials.

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS

OBJECTIVES - COLLISION AVOIDANCE	SELECTION RATIONALE
• To inform or remind boaters of their obligations with respect to rules of the road and with effective display of navigation lights and accurate recognition of others.	1) Television Spots (30 seconds) • Message should introduce awareness or remind boaters of their need to know about rules of the road, display of navigation lights, and accurate recognition of navigation light configurations; then message should provide a means to solve any information need boaters become aware of through an invitation to attend a formal boating course. • Spots would need to be sufficiently attractive visually in order to maximize the likelihood that they will be broadcast as PSAs at times when large audiences are viewing programs. • Television will provide local access to large numbers of boaters who are possible candidates for attending formal boating courses. • High credibility of the television medium in conjunction with well produced spots should provide enticement for boaters to attend formal boating courses. • Animation provides an ideal means for isolating the exact visual content necessary for the message; distractions normally found in real life filming can be eliminated; animation also can provide a more recreational tone but with no sacrifice to message authenticity. 2) Television Spots (10 seconds) Using Computer Animation for Video, and Either Coast Guard or Local Audio Track • Complete flexibility on the part of the audio track and message since the logo is the only visual message given. • Visual animation of educational logos will add a dynamic attribute to the already familiar graphic symbols. • Local organizations or business men associated with marina equipment may "tag" the spot for public relations.

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS (continued)

OBJECTIVES - COLLISION AVOIDANCE	SELECTION RATIONALE
	• Cost is relatively nominal considering the possible CPM, number of exposures, and the number of messages that can be disseminated; • Above considerations for media access to boaters and credibility also apply. • Computer animations are sufficiently attractive that they should receive prime time access as PSAs, i.e., TV stations will be likely to use them at times when large audiences are viewing programs. 3) 35 mm Slide Show for Formal Boating Course • Information about display and interpretation of navigation lights is essentially visual by definition and use. • Class environment is conducive to formal instruction in various configurations of navigation lights relative to course and bearing of boats involved. • Availability of highly visualized good quality slide presentations should encourage better instruction and better boater attendance at boating courses. 4) Single Concept Pamphlet on "Rules of the Road" • Provides take-home materials for home study, if well prepared and effective, pamphlets will likely be circulated among boaters' friends. • Cost will be notably higher than for present Coast Guard (CG) series since it is absolutely essential that the pamphlet be prepared by experienced professionals.
• To remind and instruct boaters on now to read accurate various navigation aids located in channels, rivers, etc.	1) 35 mm Slide Show for Formal Boating Course • Information about various navigation/piloting aids is essentially visual, i.e., visual markers prescribing course and speeds for boat operation. • Class environment is conducive to formal instruction for a complete understanding of local and regional use of navigational/piloting aids. • Availability of highly visualized, good quality slide presentations should encourage better instruction and better boater attendance at boating courses.

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS
(continued)

OBJECTIVES - COLLISION ACCIDENT AVOIDANCE	SELECTION RATIONALE
• To maximize the boater's alertness to the total boating environment (i.e., awareness of the boat's position, other boater's course and speed, and the boater's own course and speed.	1) 16 mm Film (20 minutes) • High initial cost for production but if well executed, film can be shown in formal boating courses, at Coast Guard visitations, or at special requests for presentations. • Moving picture film offers the mobility to enact or actually report consequences of breakdowns of operator discipline which resulted in crashes; a good medium for dramatization of facts without distorting essential information. • Again, professional production is a necessity.
OBJECTIVES - LOADING RELATED ACCIDENT AVOIDANCE	
• To maximize boaters' alertness to exceptional wave and wake conditions relative to freeboard and stability of their boat.	1) Newspaper Boating Column and Filler Press Kits • Information should be localized since weather and conditions differ in various locales; wave conditions or turbulent water often are locally variable and recognition can be made upon unique local methods; can use credibility of an established boating column or staff writer to reinforce need for alertness and give locally acceptable instructions about recognition of exceptional conditions, etc. • More than 80% of all non-advertising content in newspapers originates with the news source itself; there are more than 1200 boating columns appearing in newspapers either regularly throughout the year, or seasonally. • Cost is only for preparation of press kits. • Media survey reported in the Education Alternatives for Boating Safety Program Final Report confirms high newspaper usage by boaters.

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS (continued)

OBJECTIVES - LOADING RELATED ACCIDENT AVOIDANCE	SELECTION RATIONALE
	2) 35 mm Slide Show for Formal Boating Course • Information about boat stability is fairly difficult and requires an active lecture with possible group discussion for best instruction; slides offer effective visual support if professionally prepared. • Class environment is confined and has concentrated time allotted for learning (necessary for difficult/complex information). • The slide presentation with accompanying script should offer substantial content to a boating course; the information should be of use to boaters for selecting boats that are suited to their needs, and for judging stability characteristics. • Cost will not be prohibitive, about $2,000 to $3,000 to produce each show including a script for lecturer.
• To increase boaters' speed of reaction and precision of execution for maneuvers in reacting to exceptional wave and wake conditions.	1) Single Concept Pamphlet • An alternative to a structured in-class setting. • Offer good potential for learning difficult information about boat stability but lacks ways to motivate boaters to learn (tends to be a more passive media than active lecture or group discussion, etc.). • Pamphlet format can be made part of a series of pamphlets offered; boaters would be encouraged to continue home study using the complete series of pamphlets. • It is absolutely essential that these pamphlets are prepared by experienced professionals; consequently, cost will be notably higher than for present pamphlets in "Coast Guard" series.

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS (continued)

OBJECTIVES LOADING RELATED ACCIDENT AVOIDANCE	SELECTION RATIONALE
	2) 35 mm Slide Show and/or 16 mm Film for Formal Boating Course • See previous 35 mm Slide Show rationale. • If 16 mm film is used, cost will be fairly high ($12,000 or more); either media must be professionally produced. • Since the message content specifies instruction on adaptive maneuvers, a conventional training film approach should be taken. • If the film was done in such a way that it could be shown without prior instruction and qualification, it might be appropriate to show film at USCG visitations. NOTE: care should be taken not to get "premature closure" on the film for the public by overexposure and thereby reduce its effectiveness.
• To encourage boaters to determine the stability of their boat during safe shore side situations.	1) Magazine Features published in boating, fishing, or hunting magazines; also airline magazines • This version of the print mass media offers excellent potential for reaching the segment of boaters who do not identify themselves as such, but rather consider themselves hunters and/or fishermen. • Cost is moderate in that feature articles can be professionally prepared for less than $1,000. Publication is dependent upon policy of the various magazines. • Use of airline magazines provides some print media access to the boaters who are not sufficient enthusiasts to read boating magazines.

181

182

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS (continued)

OBJECTIVES - LOADING RELATED ACCIDENT AVOIDANCE	SELECTION RATIONALE
	2) Television Spot (10 seconds) using computer animation for video, and either USCG or local audio track. • Message should introduce awareness on boater's part of the importance of knowing capabilities of his boat prior to an emergency; procedures for determining the stability characteristics are disseminated in print media or in formal boating classes. • Computer animations are sufficiently attractive that they should receive prime time access as PSAs, i.e., TV stations will be likely to use them at times when large audiences are viewing programs. 3) Magazine or Single Concept Pamphlet • Magazine article on how to assess stability of a boat in a safe, competent way provides materials for home study and at the marina, etc. • Single concept pamphlet on same subject provides material for use in formal boating courses or for home study. • Cost considerations are same as in prior discussion of pamphlets.

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS (continued)

OBJECTIVES - LOADING RELATED ACCIDENT AVOIDANCE	SELECTION RATIONALE
• To inform boaters of appropriate ways in which to change from one position to another in a small boat.	1) Newspaper Insert in Form of a Sunday Supplement • Conveys recreational weekend feel but is disseminated during time when weekend activities are being planned. Study time is available before the weekend. • Addresses all persons in the boating family; this objective and message are best directed to all persons in the boat rather than just the operator since any person can inadvertently initiate an accident by inappropriate movement. • Cost is moderate in that the insert can be professionally prepared for about $1,000 and printed on inexpensive newspaper quality stock. • Programmed instruction methods ensure maximum learning for printed media format.
• To encourage boaters to determine the stability of their own boat, and to limit the operation of their boat to limits well within the margins of safety.	1) Single Concept Pamphlet • Since message content is basic and directed primarily to the first-time boat owner, this production needs great flexibility for its distribution: point of purchase display (where the boat was purchased), where it is licensed, or at formal boating courses. • Pamphlet format can be made part of a series of pamphlets offered; boaters would be encouraged to continue home study using the complete series of pamphlets. • It is absolutely essential that these pamphlets are prepared by experienced professionals; consequently, cost will be notably higher than for some other "CG" series pamphlets.

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS (continued)

OBJECTIVES - RECOVERY OF ALL PERSONS	SELECTION RATIONALE
All Initiators • To encourage thoughtful ownership and use of PFDs for the boater.	1) Magazine Feature • This print mass media message offers good potential to inform the committed boating enthusiast about current issues and developments in PFD research, including availability and effectiveness; media survey reported earlier in Section 2.4.4 indicates that "informed boaters" are excellent sources for disseminating information. [It is likely that an article about PFDs targeted to less informed and less committed boaters would have not had the effectiveness of the informed opinions of a first hand knowledgeable person.] • Cost is moderate in that feature articles can be professionally prepared for less than $1,000; publication cost is dependent upon policy of various magazines.
• To stimulate resourceful thinking during the decision of the boater and others on board to remain with a swamped or capsized boat. 187	1) Outdoor Advertising • Will keep PFD ownership and use at forefront of boating public's awareness. • Cost is relatively small for a single panel buy at approximately $200 per month. Art work and printing of panel sheets are approximately $200. 2) Television Spot (10 sec.) using computer animation for video and either national or local copy for audio tracks • Computer animation increases prime time access as PSAs. • Will keep PFD ownership and use at forefront of boating public's awareness. • May interest local boating clubs in sponsoring the preparation of the audio tracks, perhaps using a local broadcasting personality; since the message is clearly public service and in the interest of all boaters,

188

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS (continued)

OBJECTIVES - RECOVERY OF ALL PERSONS	SELECTION RATIONALE
	there would be good public relations value in participation in the spot. 3) Super 8 mm (local production by boating course instructor) • No cost of USCG other than to encourage its use by boating organizations offering formal boating courses. • Local production is necessary since water temperature, boating traffic, maximum distances from shore, etc. vary locally. Super 8 can offer an interesting visual supplement to a very important message in the educational program. 4) Script given to Local TV Station for production using their facilities • Script and accompanying press kit should be prepared by professional agency with experience in boating and TV production; consequently, cost for script alone will be fairly high. Production and broadcasting are not to be financial concern for USCG other than to provide the technical information and incentive. • Local emphasis to message can be achieved; familiar terrain and shoreline can be used to create interest value and more important, to facilitate boaters' ability to use the message during a crisis in the water (familiarity increases transfer of information from the message to the opportunity for its use.

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS
(continued)

OBJECTIVES - RECOVERY OF ALL PERSONS	SELECTION RATIONALE
	5) Radio Spot (30 seconds) • Cost: can be broadcast as PSAs; inexpensive to produce. • Will disseminate message to boater while enroute to the outing, or will reach boater while actually on the water. 6) Outdoor Advertising • Will disseminate message to boater and others in the boating party enroute to the outing. • Cost: see previous discussion. • Can be coordinated easily with complementary radio PSAs to add to overall effectiveness. 7) Television Spot (10 seconds) • Computer animations are sufficiently attractive that they should receive prime time access as PSAs, i.e., TV stations will be likely to use them at times when large audiences are viewing programs. • Can announce the offering of a boating course where messages will be disseminated by instructors in class. • Can keep thoughtful alternatives at forefront of boating public's awareness.

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS
(continued)

OBJECTIVES - RECOVERY OF ALL PERSONS	SELECTION RATIONALE
	8) Advertising Specialities (floating key chains and reflective stickers of the educational program logos) • Floating key chains can communicate (subtly) the safety that is available by using flotation during the aftermath of a boating accident. • After an accident, reflective stickers may remind boaters of prior instruction on how to stabilize the situation and how to proceed with rescue (in the moments of collecting floating objects, etc.); in addition, the reflective surface may facilitate recovery of items in the darkness or speed the location of the distressed party by another rescue boat.
OBJECTIVE - ASSOCIATED FACTORS	
• To call boaters' attention to the fact that there are several factors aside from actual causes of accidents that can contribute to the occurrence of an accident and that also can increase the severity of injury and likelihood of fatalities.	1) Outdoor Advertising • Cost is relatively small for a single panel buy at approximately $200 per month. Art work and printing of panel sheets are approximately $200. • Will remind boaters of effects of associated factors while enroute to the boat outing. • Art work can be executed in ways that communicate the message but still retain a recreational tone (particularly if panels are located in resort areas or on resort property). 2) Advertising Specialities (reflective stickers of the educational program logos; placemats at resort restaurants; beverage bags; drinking glasses; resealable beverage bottle caps; first aid kits;

TABLE 27. RATIONALE FOR EDUCATIONAL MATERIALS, METHODS, AND DELIVERY SYSTEMS (continued)

OBJECTIVE - ASSOCIATED FACTORS	SELECTION RATIONALE
	band-aid dispensers; and pencil clips imprinted with the educational logos) • Highly reflective stickers can be fixed to styrofoam ice chests, bottle openers, etc. • Logos printed on accessories to be used during drinking beverages (alcoholic and non-alcoholic) remind boaters they are obligated to drink only in moderation if at all while operating their craft. This strategy for reaching persons with educational messages while drinking has been used by some of the more progressive traffic safety programs. • First aid kits and band-aid dispensers are to associate caution and safety with the educational program; small wounds occurring after fatigue or excessive drinking may signal the boater is beyond his threshold for competent operation of this craft. • Pencil clips are intended to identify the broad scope of the educational program and its recommendations. • Cost is reasonable when items are purchased in quantity. 3) Newspaper Filler Press Kits • More than 80% of all non-advertising content in newspapers originates with the news source itself. • Cost is only for preparation of press kits. • Media survey reported in Section 2.4.4 showed high newspaper usage by local boaters. • Filler may be used repetitively on different days and in different sections of newspapers without loss of effectiveness.

TABLE 27. RATIONALE FOR EDUCATIONAL MATERAISL, METHODS, AND DELIVERY SYSTEMS (concluded)

OBJECTIVE - ASSOCIATED FACTORS	SELECTION RATIONALE
	1) Radio Spots (10 and 30 seconds in length) • 10 second versions permit insertion into rapid paced regular programming; these should invite broadcasting at day or evening times as PSAs. • 30 second versions permit actual instructional messages. • Both 10 and 30 second versions provide access to boaters enroute to boating outing (in conjunction with outdoor advertising) and in some cases actually on the water while boating.

3.5 Coordination of Production and Dissemination of Boating Educational Materials

The planning, production, and delivery of the educational messages require disciplined coordination if they are to be effective. This coordination is on three levels: systematic planning of content for the educational program using rigorous research methods to identify the exact intentions and scope of the program, the production of educational messages themselves which are tied into a common educational program using conventional strategies for that purpose, and the delivery of the messages which are timed according to requirements specified in the overall educational program.

The planning of content for the educational program is reported in depth in the first section of this report. The coordination of the production for the illustrative educational messages was accomplished by adhering to well defined guidelines established in advance of most production work. It was requested that all contractors producing messages conform to production specifications for this plan, and whenever time permitted, these specifications were rigorously enforced. The intent of these guidelines was to achieve continuity among messages so that they would be perceived by boaters as related to the same comprehensive educational program. It is the collective or cumulative effect of these messages that produces the major effectiveness of this program.* The production guidelines actually given to the participating contractors are as follows:**

1) All messages are to reflect the combined tone of recreational quality and authenticity of content and sources.

2) Use similar illustration style and photography style. (Samples of illustrations drawn by a commercial artist were prepared early in the program). Photographs are to reflect an orientation of vicarious participation in the action wherever possible; i.e., photos should be shot from audiences' "point of view."

---

* Additional detail for the effect of coordinated messages for the educational program is presented in the Video Tape Supplement to this report. The script for the supplement is given in Appendix N.

** There is always a problem of enforcement of these kinds of guidelines. It is suggested that the administrator of the educational program provide this information to the contractor at the onset of the production, and maintain sufficient contact during the production period that necessary revisions in the production are kept inconsequentially small.

3) Use similar type fonts where possible; the preferred type fonts were optima and garamond.

4) Use similar paragraphing and copy styles for both print and electronic media; paragraphing is to be short and well defined in order to invite reading; extensive use of titles or headings is recommended; copy style is to use repetition and question/answer format where content and media permit. Two repetitive devices are recommended:

   "As a boater ..." initiating paragraphs
   "Remember ..." initiating reiterated materials.

5) Use the educational program graphic symbols (logos).

6) Use the educational program colors (international orange, blue, and white) on covers for pamphlets, in illustrations, in photographs, on advertising specialities, etc.

7) All messages are to be consistent with the theme of the educational program, i.e.:

   A boater is obligated to be knowledgeable and skilled in the operation of his boat. It is emphasized and strictly enforced that the production messages do not make direct reference to boating safety. Rather, contractors are to make references to competent seamanship, knowledgeability, and boater expertness and skill. It is taken that a boater who is knowledgeable and skilled will be the more competent operator and less likely to be involved in an accident. Further, this boater is more likely to survive an accident if it does happen, and to facilitate the survival of others.

The coordination of timing for an actual educational program is suggested where two or more messages are to be disseminated at complementary times. Other timing would be suggested by accident statistics, boating events that attract attention in and of themselves, and by Coast Guard policy and judgment. Since no messages in this project were actually delivered, emphasis was on those aspects of program coordination involving research and production of prototype messages.

3.6 Production of Illustrative Messages

. Several messages were produced as illustrative educational materials. In some cases, these are exemplary, in others, they should be revised or redone if actually used. Since the work of production was accomplished by 10 different contractors in only six months, quality for the finished program was obviously going to be uneven. In some cases, preferred production contractors could not be used because of the time demands for finishing this project. Written critiques of the materials could not be made available; however, those materials of sufficient quality for broadcasting or publishing are readily identifiable. It should be noted that as a general rule the younger artistis, animators and writers used for the program proved to be easy to work with, produced excellent quality work, and priced their work moderately.

The messages included for the illustrative production were chosen to provide an assortment of media, educational methods, and production format for this project (and in conjuction with the collision education project). An itemization of the materials prepared for the loading related educational program and the producing contractors are given in Table 28.

Most of the illustrative production materials are available for inspection and study. They are also "showcased" in the context of a completed educational program in the video tape supplement to this report. It should be noted that the programs presented in this education report, in the Pleasure Boat Collision Education report and in the Pleasure Boat Loading Related Accident Education report are intended for one and the same overall program, and are recommended as a comprehensive Coast Guard effort. However, any participation on the part of state or local agencies or private organizations in an actual operational educational program would be strictly voluntary. The intentions of the recommended program are to provide the best possible resources for conducting a nationwide boating educational program that is designed to reduce loading related and collision boating accidents and fatalities. Excepting the obvious mass media production, these resources are to circulate among persons and organizations interested in conducting local educational programs (only at their request, of course). Mass media efforts can be initiated on the part of the Coast Guard without any notable interference with local or private educational programs. In addition, the mass media should have the effect of generating local interest in participating actively in the educational program.

TABLE 28. EDUCATIONAL MATERIALS PRODUCED FOR THE ILLUSTRATIVE EDUCATIONAL PROGRAM WITH COST AND PARTICIPATING CONTRACTORS

PRODUCTION	CONTRACTORS
Graphic symbols (logos); See Appendix M; (Cost $650.00)	Porter Smith-Thayer/Porter Graphics 14-1/2 S. Court Street, Athens, OH 45701
(4) 10 second television spots using computer animation of educational logos. See Appendix 0-1 for scripts; video tapes: 2 in. and 3/4 in. are on file (Cost $3,000.00)	Produced by Computer Image Corporation (2475 West Second St., Suite 4, Denver, CO 80223) with P. Zimmerman, D. Holman, J. Berman (consultant) Ohio University, Athens, OH 45701, and E. Sager
(1) 30 second television spot for collision education using animation. See Appendix 0-2; film is on file (Cost $2,200.00; this spot was one of three totalling $6,344.00)	Fingers Animation (P.O. Box 5259, Atlanta, GA 30307), and Oglesby Harden, Inc. (sound studio) (1820 Briarwood Industrial Court, Atlanta, GA 30329), Written by J. Murray, Ohio University, Athens, OH 45701
(2) 35 mm slide shows, one for navigation/piloting aids and one for navigation lights. See Appendices 0-3 and 0-4 for scripts; slides are on file. (Cost $4,840.00)	Written and photographed by Arbus Films, 8005 Navios Drive, Huntsville, AL 35802
Storyboard for 20 minute 16 mm film on collision accidents. See Appendix 0-5 for the suggested script and a reduced photo reproduction. Actual storyboard is on file. (Cost $610.00)	Written by Arbus Films, 8005 Navios Drive, Huntsville, AL 35802
Single concept pamphlet "Small Boat Stability" for the fifth objective in Table 1. See Appendix 0-6. (Cost of artwork $850.00; cost of printing $900.00)	Written by B. Hayes and J. Murray (consultant) Ohio University, Athens, OH 45701
(2) radio spots to be coordinated with outdoor advertising. See Appendix 0-7 for scripts; audio tape is on file (Cost $80.00)	Written and read by J. Kell at WAAY Radio, 1015 Country Rd., Huntsville, AL 35804
Outdoor Advertising artwork for two panels. See video tape supplement for this report; artwork is on file. (Cost $200.00)	D. Jennings, Creative Display, Inc., 301 Pratt Ave., Huntsville, AL 35804, and W. Johnson, WAAY Radio, 1015 Country Rd., Huntsville, AL 35804

TABLE 28. EDUCATIONAL MATERIALS PRODUCED FOR THE ILLUSTRATIVE EDUCATIONAL PROGRAM WITH COST AND PARTICIPATING CONTRACTORS (concluded)

PRODUCTION	CONTRACTORS
Super 8 mm film (actually produced in 16 mm to insure sufficient quality for video tape for supplement for this report. See Appendix O-8 for script; film is on file. (Cost $1,000.00)	Written by J. Bowman, Filmed by Arbus Films, 8005 Navios Drive, Huntsville, AL 35802, and Wyle Laboratories, Huntsville Facility
Advertising specialties. See Appendix O-9 and see video tape supplement for this report. (Cost $300.00)	The Riley Company, 925 Henderson Rd., NW Huntsville, AL 35805, and Pro Screen Company, 1310 Buford St., P.O. Box 3374, Huntsville, AL 35805
Newspaper Supplement Insert. See Appendix O-10 for copy only; "paste-up" is on file. (Cost $1,400.00)	F. Ainsworth, Outdoor Empire Publishing 511 Eastlake Ave. E., P.O. Box C-19000, Seattle, WA 98109
Magazine feature on PFD ownership and use. See Appendix O-11 for copy only; "paste-up" is on file. (Cost $600.00)	F. Ainsworth, Outdoor Empire Publishing 511 Eastlake Ave. E., P.O. Box C-19000 Seattle, WA 98109
Magazine feature on adaptive maneuvers for hunting and fishing sportsmen. See Appendix O-13 for copy only; "paste-up" is on file. (Cost $600.00)	F. Ainsworth, Outdoor Empire Publishing 511 Eastlake Ave. E., P.O. Box C-19000 Seattle, WA 98109
Newspaper Filler. See Appendix O-13. (No cost)	J. Murray, Ohio University, Athens, OH 45701 with E. Sager

4.0 PART THREE - EXPERIMENTAL DEMONSTRATION OF TWO ASPECTS OF DESIGN OF EDUCATIONAL MESSAGES FOR ELECTRONIC MEDIA AND PRINT MEDIA

4.1 General Introduction to Demonstrations

The present section is an endeavor to document two methods by which educational messages can be designed. Documentation is in terms of demonstrating relative effectiveness of methods in an experimentation setting. Electronic and print mass media materials were selected for the demonstration since their preparation for an actual program represents a major expenditure of time and money. Section 4.2 presents a comparison of three versions of a television public service announcement (PSA) where audience participation or involvement is varied. This study was intended to demonstrate that evoking a greater participatory response on the part of the viewer during perception of the message produces greater recall of message content. Section 4.3 presents research to compare readers' retention of message content for one of two versions of a pamphlet on boating stability. One version is an example of an optimally designed pamphlet incorporating state-of-the-art methods to attract and instruct its readers. The second version represents a *typical* product for an instructional pamphlet.

4.2 Comparison of Three Levels of Participative Response to a Television Public Service Announcement

4.2.1 Background

State-of-the-art design methods with demonstrated effectiveness can be found in many messages produced in the advertising world. Guidelines have been developed by most successful ad agencies to maximize the impact of messages within strict time and/or space limitations. Many of these methods have originated with or have been demonstrated in the context of systematic scientific research in the areas of human information processing and experimental persuasion. One tenet having strong empirical support is that an audience's personal involvement in, or participatory interaction with, the message will increase retention of the message content. In other words, when an audience is required to participate actively to receive the message say through the use of question-and-answer format, or problem-solving, that message is likely to be more effective than when a message is presented using passive methods.

In the present experiment, a message inviting boaters to call the Coast Guard for additional information on boating was produced in three different versions. While the basic information content was the same for all three versions, they were designed in such a way that one version should elicit a maximum amount of participation in the viewer; a second version minimized viewer participation but still included all the information of the first message; and a third version represented an intermediate level of participation. These three versions of one message were shown to groups of persons, who were shortly afterwards asked to recall information concerning that PSA. It was expected that recall scores would be higher for the PSA that evoked more participation. Table 29 contains a list of differences between the three versions of the PSA that were intended to produce different participatory response. A second dimension was simultaneously explored: the value of an educational logo as a reminder of the message, presented immediately before the recall test. It was hypothesized that exposure to the logo between the message and the recall task might facilitate recall.

TABLE 29. DIFFERENCES AMONG THE THREE VERSIONS OF THE TELEVISION PSA DESIGNED TO ELICIT DIFFERENT LEVELS OF VIEWER PARTICIPATION

Maximum Participation	Moderate Participation	Minimum Participation
A major question concerning rules of the road is posed and left unanswered.	The question is posed and then answered in the announcement.	No question or answer for the rules of the road situation.
Freeze-frame used for visual emphasis of the question.	Freeze-frame used for visual emphasis of the question.	No freeze-frame used and animated action continues throughout announcement.
Minimum of narrative is used by announcer.	Some narrative is used.	Narrative used exclusively.
Key sentences are displayed on screen one word at a time as they are spoken by announcer.	Key sentences are displayed on screen one word at a time as they are spoken by announcer.	No key sentences are displayed on screen while they are spoken by announcer.

All these versions included the same basic animation except for the freeze frame technique, and all versions were ended by the educational program slogan, "... if you're a boater, you're obligated to know, you know," along with the general endorsing logo for the educational program. A composite cell of the animation scene is presented in Figure 3. The scripts for production of the three versions of the announcements are presented in Appendix P.

4.2.2 Method for Television Announcement Demonstration

4.2.2.1 Research Design - The design for the demonstration required six groups of persons (subjects) in order to accommodate the three different versions of the television spot in conjunction with whether or not the Coast Guard education logo was given as a reminder cue prior to answering recall items. A pictorialization of the research design is presented in Figure 4 and includes the number of subjects allocated for each cell. A two-way analysis of variance technique was used to calculate possible statistical significance of the outcome.

	Max. Participation	Moderate Participation	Min. Participation
Reminder Logo	22 subjects	25 subjects	20 subjects
No Reminder Logo	20 subjects	23 subjects	21 subjects

FIGURE 4. PICTORIALIZATION OF RESEARCH DESIGN

4.2.2.2 Television Spot Test Materials - Three 3/4" video cassette tapes were prepared for the demonstration. Each tape contains the first 11 minutes of a television show currently in syndication (an episode from "Bewitched") followed by two unrelated PSAs ("Do It for Her - Do It for Him") for high blood pressure medication, and Dick Smothers' humorous talk with a computer about job opportunities. One of each version of the experimental boater education PSAs were inserted between the two unrelated PSAs for the showing to subjects. One 25-inch Sony color monitor was positioned at the front of the experimental room and was checked for clear view from all seats. A Sony cassette tape playback machine was patched to the monitor and located outside the room. Subjects were to be aware only of the monitor, and were not to be informed of the exact source of the closed circuit telecast.

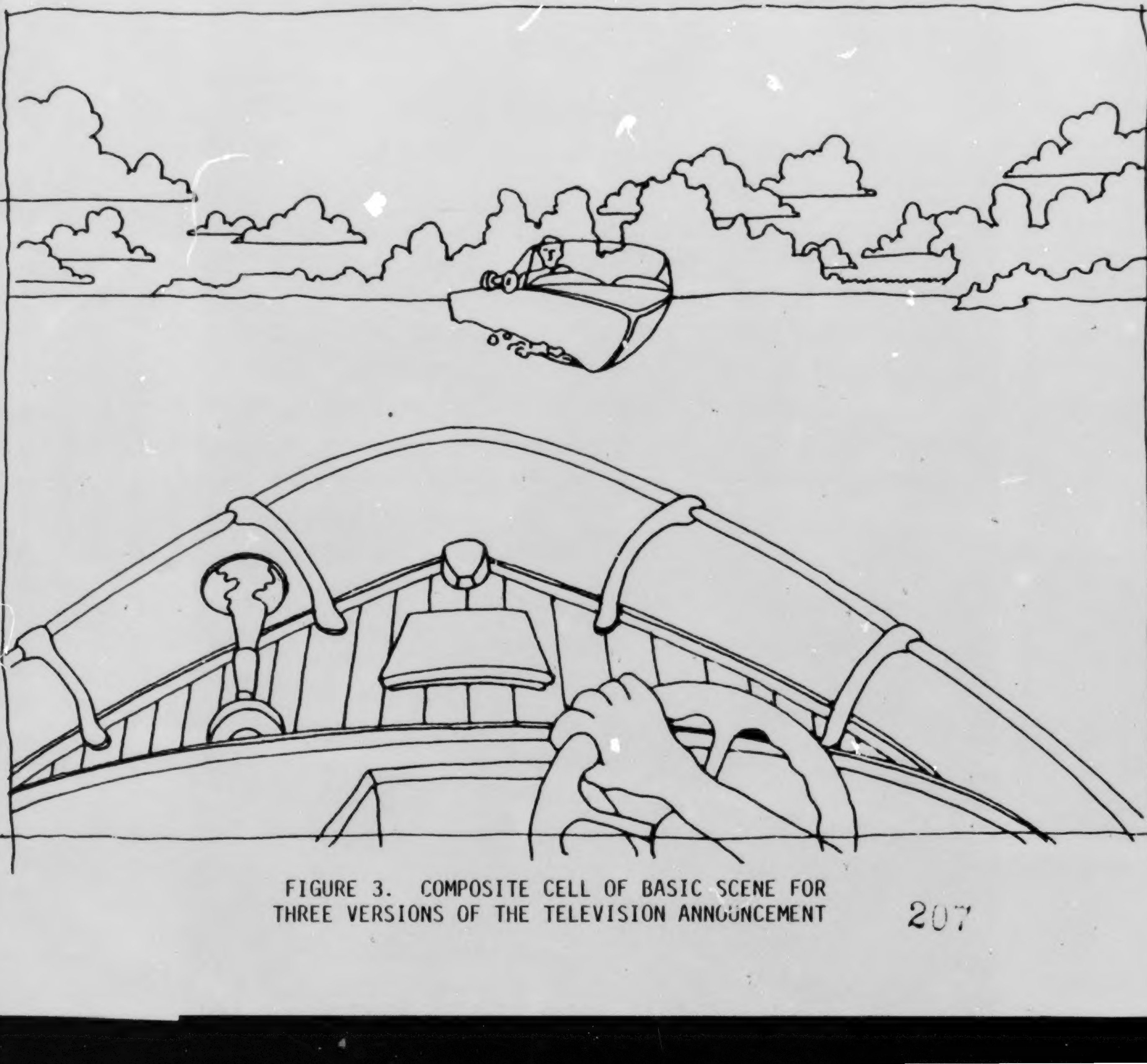


FIGURE 3. COMPOSITE CELL OF BASIC SCENE FOR THREE VERSIONS OF THE TELEVISION ANNOUNCEMENT

The test booklet consisted of three groups of items for measurement of recall, and also included the administration of the logo reminder cue condition for the experiment. The first group of items deals with characteristics of the subject (i.e., sex, age, rank in the University, boating experience, and formal boating course attendance), and was presented on one page. The second group of items dealt with impressions or reactions to the experimental television spot announcements. Four of these items were linear scales on the dimensions of subjects' *involvement* in the announcement, *value* of the announcement, *credibility* of the announcement, and *value* of the Coast Guard recorded message. The fifth item was an open ended item that requested subjects to report *one thing* that contributed most to their understanding the information presented in the announcement. The third group of items was for subjects' recall of information in the announcement. There were five recall items, and they were of the fill-in type.

The educational logo condition was administered on a page of the booklet inserted between the first group of items and impression items. In the booklets used for the logo reminder condition, the general educational logo was printed on the insert page. In booklets used for the no logo reminder condition, the inserted page was blank.

4.2.2.3 Subjects - Subjects participating in the study of the television spot messages were 133 University of Alabama (Tuscaloosa) students enrolled in introductory courses in the Broadcasting and Film Department. They were recruited on the basis of their having an interest in, or experience with, recreational boating. Two subjects were excluded from the analysis because they had participated in the related print media demonstration, and it was felt that there might be some unpredictable bias in their behavior. Of the 131 remaining subjects, 57 (43.5%) were male, and 74 (56.5%) were female. They ranged in age from 17 to 37, with a mean age of 19.7 years. Their class ranks were: freshmen - 57 (43.5%), sophomores - 34 (26.0%), juniors - 25 (19.1%), seniors - 13 (9.9%), graduate students - 1 (0.8%), and one person going for a second major degree (0.8%). Most subjects reported having less than 100 hours of boating experience and 15 had taken some version of a formal boating course. All volunteers for the study received credit toward a grade for the course and a small gratuity (a disposable flashlight) from Wyle.

4.2.2.4 Procedure - Three 30-minute sessions were conducted on each of three consecutive evenings (6:30, 7:30, and 8:30 p.m.). These sessions were held in the Broadcasting and Film Building at the University of Alabama. Each of the three versions of the boating PSA was presented in counterbalanced order. On Monday, the first experimental group received the minimum participation version, the second group received the moderate participation version, and the third group received the maximum participation version. On Tuesday, the order was alternated so that the first group that evening received the maximum participation version, etc. Each subject saw only one version of the message and was unaware of any other version.

Subjects were instructed to arrive at a special meeting room where they were assigned either the number (1) or (2) in the order of their arrival. When all subjects had arrived, they were taken to the experimental room as a group. Those assigned (1) were instructed to sit on one side of the room, those assigned (2) sat on the other. Instructions for the experiment were then read by the Experimenter:

> *"Thank you for coming tonight. This project is part of an overall study of how certain media can be used to best communicate messages intended for large numbers of people. The work is being done by Wyle Laboratories which is a national company with a large facility in Huntsville.*
>
> *"We would like for you to view a short presentation that could very easily be representative of about 12 minutes of early evening television programming. Although you probably watch most of your television in more comfortable surroundings, try to view this presentation in the way you normally watch a show of interest to you. OK, let's begin."*

One of the three experimental video tapes was then played. When the third PSA on the video tape had concluded, the experimenter continued reading instructions:

"All right, now we would like to get some of your reactions to one of the public service announcements shown at the break in the show. There are two parts to this list of questions. Part One is information about you that will enable us to better understand the results of the project, e.g., age, rank, etc. Part Two is a list of several questions that refer specifically to the public service announcement under consideration. I'll now distribute the booklets. Please do not open the booklets until I give further indstructions."

The booklets were handed out by the experimenter and an assistant. Subjects on the left-hand side of the room received booklets with the inserted Coast Guard logo, while those on the right side of the room received test booklets with a blank page in the same position. A copy of a booklet for the logo reminder condition is shown in Appendix Q. The experimenter continued:

"Please fill out the information on the cover. (Pause) Now, please open the booklets to Part One and answer those questions on the page. When you have finished Part One, please turn the page and wait. We will all begin Part Two together."

The experimenter waited until all persons had completed the sheet requesting the demographic data, and then paused another 30 seconds, to ensure exposure to the page with the logo (or no logo). The experimenter continued:

"All right, turn the page and let's go on to Part Two. Please read the instructions at the top of the page silently as I read them aloud.

PLEASE COMPLETE THE FOLLOWING QUESTIONS CONCERNING THE PUBLIC SERVICE ANNOUNCEMENT INTENDED FOR RECREATIONAL BOATERS. THIS WAS THE SECOND ANNOUNCEMENT YOU SAW A MOMENT AGO. THE QUESTIONS LISTED REQUIRE TWO KINDS OF ANSWERS -- SPECIFIC IMPRESSIONS YOU HAVE OF THE ANNOUNCEMENT, AND INFORMATION YOU CAN RECALL FROM THE ANNOUNCEMENT. IT IS IMPORTANT THAT THE QUESTIONS ARE ANSWERED IN THE ORDER GIVEN.

THE FIRST SET OF QUESTIONS CONCERN YOUR IMPRESSIONS OF THE ANNOUNCEMENT. PLEASE CHECK __✓__ THE SPACE THAT MOST CLOSELY CORRESPONDS TO YOUR FEELINGS ABOUT THE ANNOUNCEMENT. PLACE ONLY ONE CHECK MARK ON EACH SCALE."

Here the experimenter demonstrated an example scale which had been put on the chalkboard during preparation for the session:

"For example, if on this scale you thought the announcement was extremely good, you would check here.

If you thought the announcement was good but not extremely, place your check here, and

> *If you thought the announcement was bad but not extremely, place your check here.*
>
> *Time allotted for these questions is about 10 minutes and you should have no trouble finishing in that time. When you have finished, turn your paper over and remain seated until everyone has finished. The questions will be collected at that time, and a sheet of paper will be passed around for you to sign, so that you will receive credit for participation. Your complimentary gifts for helping us in this study are from the U. S. Coast Guard, and will be handed out when all testing for this project has been completed. They will be given to your instructor for distribution. OK - go ahead."*

When all subjects had completed the task and turned over their test booklets, they were collected and the final instructions were read:

> *"Is there anyone here tonight who has also participated in the psychology class experiment using the pamphlets on boating safety? You will receive two flashlights and credit in both your psychology class and your communication class. However, we need this information for our records.*
>
> *"Please do not discuss this experiment with anyone until after you receive your gift. This is critical to the success of our project. I can't stress enough how important it is for you to wait until you receive this gift before telling anyone else about your tasks here this evening. Thank you all for participating." (The flashlights were given out by the respective course instructors when the experimentation was finished.)*

4.2.3 Results of Television Announcement Demonstration

4.2.3.1 Effect of Boating Experience and Boating Course Participation on Recall Scores - The results of subjects' boating experience, whether or not they had taken a formal boating course, and the specific boating courses they had taken are summarized in Table 30. Recall test performance was crosstabulated with the first two variables. Chi-square was calculated to determine if either crosstabulation was statistically significant. Neither of the comparisons was significant ($\chi^2(15) = 18.531$, $p>0.05$; and $\chi^2(5) = 5.786$, $p>0.05$, respectively).

4.2.3.2 Impression of the Television Announcements - The responses to the items addressing the impressions which the subjects had of the public service announcements were compiled for the groups viewing each version (i.e., the maximum, moderate, or minimum participation versions).

211

TABLE 30. BOATING EXPERIENCE AND BOATING COURSES OF SUBJECTS IN THE TELEVISION PSA DEMONSTRATION EXPERIMENT, CROSSTABULATED WITH RECALL SCORES

ITEM		RECALL SCORES (VALUES 0-5)							Chi-Square & Significance
		0	1	2	3	4	5	Total	
Boating Experience (in hours)	<20	4	11	29	19	3	1	67	$\chi^2(15) = 18.531$
	20-100	1	4	24	3	2	0	34	$p > 0.05$ n.s.
	100-500	0	2	7	6	0	0	15	
	>500	0	3	11	0	1	0	15	
	TOTAL							131	
		0	1	2	3	4	5	Total	
Took a Formal Course		0	2	10	1	2	0	15	$\chi^2(5) = 5.786$
No Formal Course		5	17	61	27	4	1	115	$p > 0.05$ n.s.
TOTAL								130*	

TYPE OF BOATING COURSE TAKEN	Frequency and Percent**
No Formal Course	115 (87.8%)
Coast Guard Auxiliary Course	1 (0.8%)
Power Squadron Course	1 (0.8%)
State Sponsored Course	2 (1.5%)
Boy/Sea Scout Course	4 (3.1%)
Local Boating Club Course	1 (0.8%)
Public School Course	1 (0.8%)
College Boating Course	0 (-)
Summer Camp Boat Training	7 (5.3%)
Marine Dealers/Marina Operator Training	2 (1.5%)
YMCA Course	0 (-)
U.S. Navy Marina	1 (0.8%)

* 1 Case missing this information

**In some cases a person listed more than one boating course. Percentages were based on a total of 131 persons.

The scales were scored by assigning numbers to spaces on the scales with 1.0 being the low rating and 4.0 being the high rating. Mean values were then computed for the scales and the results are shown in Table 31.†

TABLE 31. MEAN RESPONSES FOR IMPRESSIONS OF THREE EXPERIMENTAL TELEVISION ANNOUNCEMENTS

TEST ITEMS FROM BOOKLET	$\overline{X}$ Response Score *				
	Maximum Message		Moderate Message		Minimum Message
ITEM 1. "Please indicate the extent to which you felt *personally involved in the announcement.*"	2.67	(0.19)** →	2.48	(0.11) ←	2.59
ITEM 2. "Indicate the extent to which you feel the announcement is valuable to you."	3.12	(0.39) →	2.73	(0.07) ←	2.80
ITEM 3. "Indicate the extent to which you feel the announcement has credibility."	3.36	(0.18) ←	3.54	(0.03) →	3.51
ITEM 4. "Indicate the extent to which you feel the U.S. Coast Guard recorded telephone message will have value for you."	2.62	(0.31) →	2.31	(0.02) →	2.29

* These means are based on ratings assigned by the subjects as follows:

1.0 = Extremely uninvolved; not valuable; not credible
2.0 = Somewhat uninvolved; somewhat non-valuable; somewhat non-credible
3.0 = Somewhat involved; somewhat valuable; somewhat credible
4.0 = Extremely involved; extremely valuable; extremely credible

**The number in parentheses is the difference between the two means to the right and left of it, and the arrow beneath it is directed from the higher to the lower value.

---

†Since subjects' impressions of the announcements were exploratory in nature, i.e., not linked to experimental hypotheses for the demonstration, no statistical hypothesis testing (t-tests, etc.) were attempted. The results are reported as descriptive data only.

The ratings do suggest that the participative response varied in the design of the messages did affect the subjects' impressions of the messages. On three of the four scaled items, the maximum participation version produced slightly higher ratings than the less participative versions. The one item on which the maximum participation version did not receive a higher rating addressed the credibility of the message. It can be observed that differences between the minimum and moderate versions of the message were smaller overall than those between the maximum and moderate participation versions, and on two of the four items there was only a negligible difference. Those persons exposed to the maximum participation message reported somewhat more feeling of being personally involved, and judged the announcement and Coast Guard recorded message somewhat more valuable than the other groups. It may be noted that the three messages differed only slightly in amount of value of the recorded message, and the direction of these findings tends to conflict with the credibility item.

The results for the fifth item, requesting what contributed most to the subject's understanding of the information, are catalogued in Table 32. Classifying and categorizing the comments produced several observations that warrant mention.

In the first category (Technical Characteristics of the Announcements), the animation was mentioned by the minimum participation group more often than by the other groups. Indeed, this was the one single issue which was most often repeated by any of the groups (24% of all responses). The other notable mention among the groups in this category is the high percentage (23%) of references to the audio track of the PSA by the moderate participation group, as opposed to 10% and 2% for the other groups. Apparently the participation variable did evoke sufficient arousal to influence mention by the subjects. A relatively large number of persons in the maximum participation group made reference to the fact that a question was being asked, (10%) or that there was unresolved arousal in connection with watching the PSA (17%). In the moderate and minimum groups, 21% and 20% respectively acknowledged the answer to the rules of the road question (answer was not given in the maximum participation version). Several persons in the moderate and maximum groups mentioned some specific form of arousal. Items concerning boating safety or mentioning contacting the Coast Guard were most frequent in the maximum participation group (26%) and least frequent in the minimum participation group (10%).

TABLE 32. CATEGORIES OF ANSWERS TO ITEM 5: *"Of all the materials presented in the announcement, what one thing contributed most to your understanding of the information?"*

CATEGORY OF RESPONSE	ISSUES MENTIONED IN THE RESPONSES	NUMBER OF TIMES MENTIONED PER GROUP (AND % OF THAT GROUP)*		
		MAXIMUM	MODERATE	MINIMUM
TECHNICAL CHARACTERISTICS OF THE ANNOUNCEMENTS	The visual stimulus (general)	6 (14%)	9 (19%)	6 (15%)
	The animation (or "cartoon," "simulation," "illustration," or "drawing")	5 (12%)	5 (10%)	10 (24%)
	The narration or audio track	4 (10%)	11 (23%)	1 (2%)
	The combination of audio and visual stimuli	2 (5%)	3 (7%)	3 (7%)
	Print-out of the words	1 (2%)	0	0
	The simplicity of the visual action	0	0	1 (2%)
		** 18 (43%)	27 (56%)	20 (49%)
CONTENT OF THE ANNOUNCEMENTS	Correct statement of the boating rule (2 honks of horn means you're passing on the right)	0	9 (19%)	6 (15%)
	Incorrect statement of the boating rule	0	1 (2%)	2 (5%)
	General description of the situation or reference to the rule without stating it	2 (5%)	8 (17%)	10 (24%)
		2 (5%)	18 (38%)	18 (44%)
FORMAT OF THE ANNOUNCEMENTS	The question	4 (10%)	1 (2%)	0
	Drama or arousal, an unresolved situation	7 (17%)	1 (2%)	0
	Drama or arousal, with resolution	0	0	1 (2%)
		11 (26%)	2 (4%)	1 (2%)
MENTION OF THE PURPOSE OF THE ANNOUNCEMENTS	Boating Safety	0	3 (6%)	3 (7%)
	Need for knowledge of boating safety rules	7 (17%)	2 (4%)	0
	Awareness of possibility of accidents	1 (2%)	1 (2%)	0
	Awareness of own ignorance concerning boating safety	1 (2%)	0	1 (2%)
	Contacting the Coast Guard	2 (5%)	2 (4%)	0
		11 (26%)	7 (17%)	4 (10%)
MISCELLANEOUS	Positive impression (e.g., "effective")	0	1 (2%)	0
	Negative comment (e.g., "uninteresting")	0	1 (2%)	0
	Disliked animation	0	1 (2%)	0
	No answer (or unintelligible, uninformative, or irrelevant answer, or "nothing" as answer)	7 (17%)	2 (4%)	1 (2%)
		7 (17%)	5 (10%)	1 (2%)

* Results (and percentages) are based on the following n's: Maximum = 42, Moderate = 48, and Minimum = 41. If a response addressed more than one issue, it was recorded under all those categories.

** Totals for the Category. These may be slightly smaller than the sum of the individual items for that category because in a few cases one respondent was included for more than one item; however, he is only counted once for the category total.

4.2.3.3 Recall of the Information in the Television Announcements - The final five items in the booklet requested specific information to be recalled from the PSA. Recall scores were computed by summing the number of correct answers for all five items for each subject (values could range from 0 for no recall to 5 for complete accurate recall).

Comparisons were then made for each of the six experimental conditions included in the research design (i.e., three versions of the television spot with the logo or no logo booklet condition). The summary table of analysis of variance values is presented in Table 33. Analysis of variance of the recall scores resulted in a statistically significant main effect for the three versions of the television spots ($F(2) = 5.593$, $p<0.05$). Main effect values for the logo/no logo booklet condition were not statistically significant ($F(1) = 1.662$, $p>0.05$); however, interaction between television spots and the booklet logo/no logo condition produced statistical significance ($F(2) = 3.632$, $p<0.05$). The mean recall scores for each experimental group are shown in Figure 5.

TABLE 33. SUMMARY OF ANALYSIS OF VARIANCE OF RECALL SCORES FOR TELEVISION ANNOUNCEMENTS

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
Main Effects	8.675	3	2.892	4.201	p<0.05
Television Announcements	7.700	2	3.850	5.593	p<0.05
Logo/No logo	1.144	1	1.144	1.662	p>0.05
Interaction	4.999	2	2.500	3.632	p<0.05
Explained	13.674	5	2.735	3.973	p<0.05
Residual	86.036	125	0.688		
TOTAL	99.710	130	0.767		

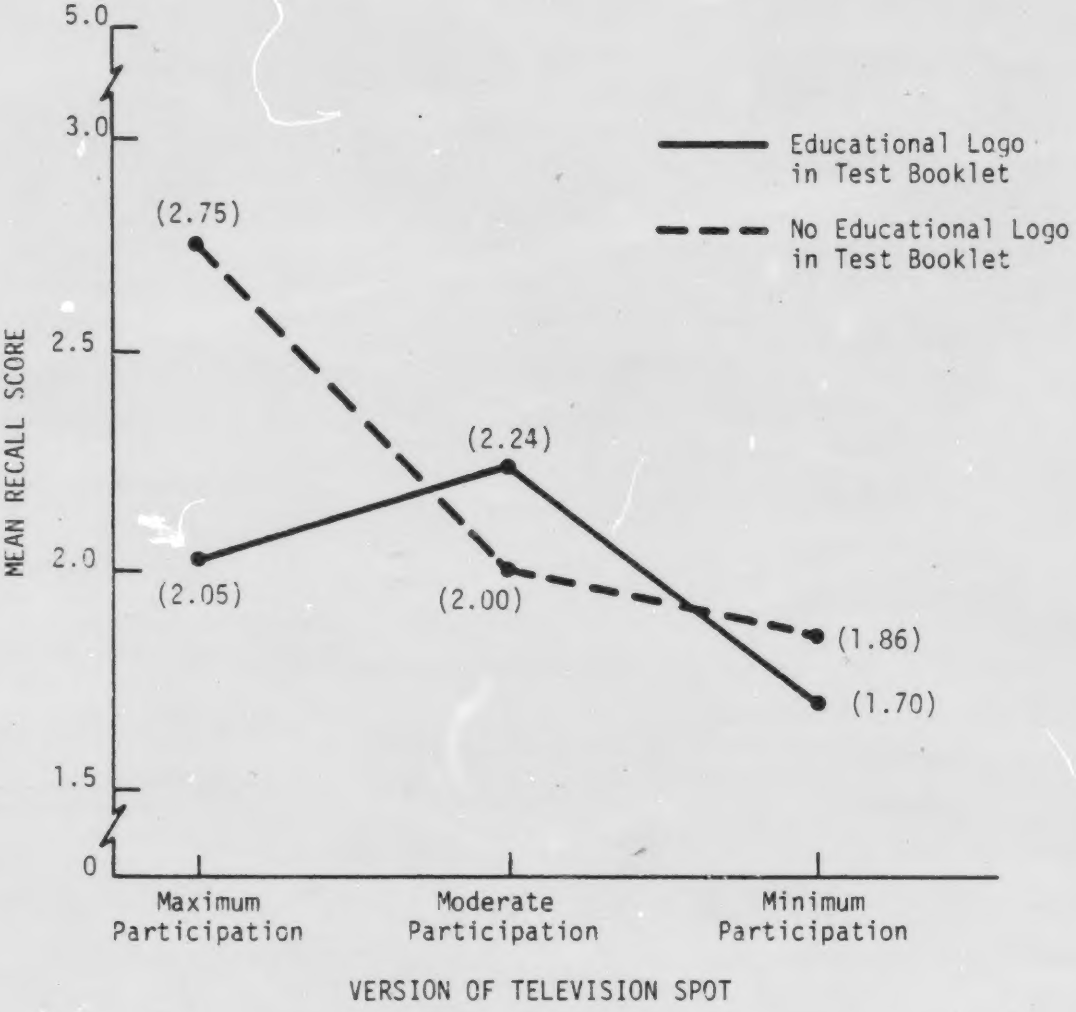


FIGURE 5. MEAN SCORES ON THE RECALL TEST FOR THE THREE VERSIONS OF THE TELEVISION SPOT, WITH AND WITHOUT EDUCATIONAL LOGO PRESENT IN THE TEST BOOKLET

In order to facilitate the graphic display of the effect on recall produced by levels of participation in the television announcements, the data were collapsed over the logo/no logo booklet conditions. These mean values (averaged for the logo/no logo recall scores) are shown in Figure 6.

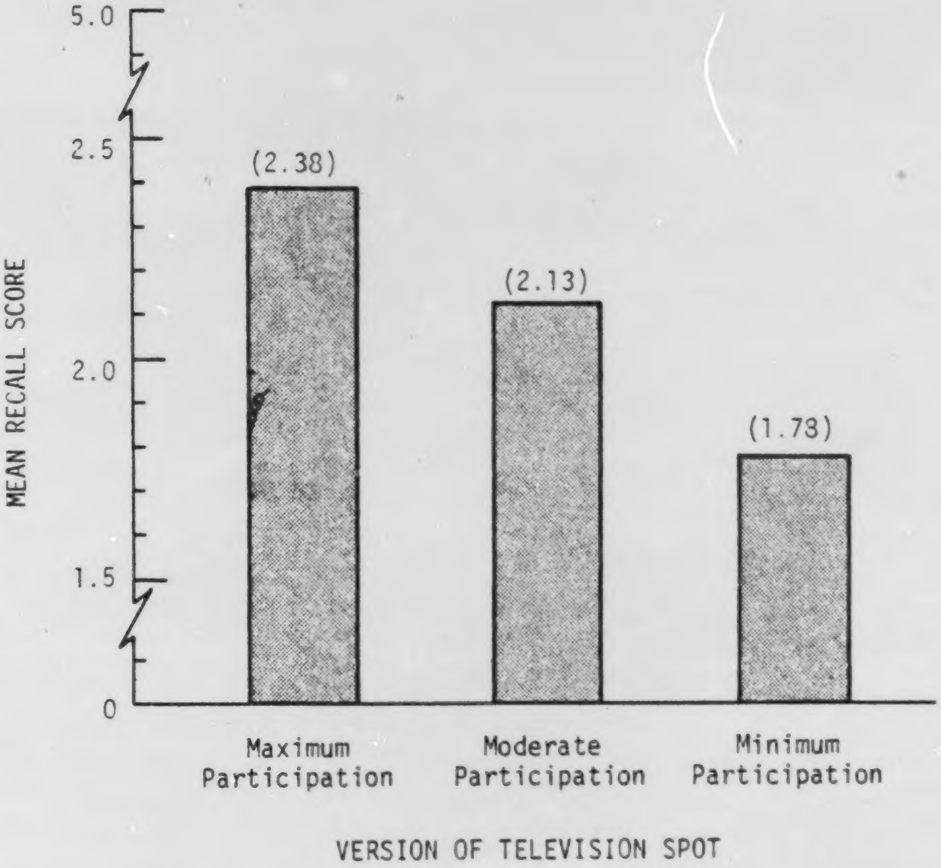


FIGURE 6. MEAN SCORES ON RECALL FOR THE THREE EXPERIMENTAL TELEVISION ANNOUNCEMENTS COLLAPSED ACROSS THE LOGO/NO LOGO CONDITIONS

A supplementary analysis was undertaken for the recall scores for Item 3 (request for the Coast Guard telephone number in all three versions). This post hoc analysis was suggested when it was noticed in scoring the booklets that many subjects recalled part of the number but not the entire, complete answer. It was felt that the all-or-none scoring originally planned might have obscured some real differences in recall that had occurred with respect to the telephone number. As a result, the number was divided into four "information chunks:" 1, 800, 594, and 6000. Subjects then received a score on the item ranging from 0.0 (if no correct chunk was recalled) to 4.0 (if the whole number was correct). Subsequent analysis of variance calculated for the six experimental conditions did not produce statistical significance for either television announcements or booklet conditions. Further analysis of the chunked telephone number recall data was not conducted. The summary of the analysis of variance computations is presented in Table 34.

TABLE 34. SUMMARY OF ANALYSIS OF VARIANCE OF TELEPHONE NUMBER RECALL SCORES FOR TELEVISION ANNOUNCEMENTS

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
Main Effects	5.702	3	1.901	1.112	p>0.05
Television Announcements	4.857	2	2.429	1.421	p>0.05
Logo/No Logo	0.979	1	0.979	0.573	p>0.05
Interaction	2.266	2	1.133	0.663	p>0.05
Explained	7.969	5	1.594	0.932	p>0.05
Residual	213.665	125	1.709		
TOTAL	221.634	130	1.705		

The statistically significant main effect for the television spots, and for the interaction warranted further analysis of the combined recall item data. Multiple comparisons among the three group means for the versions of the television announcements were made using the Scheffe´ technique (a more rigorous method than other multiple comparison methods with regard to Type I error, i.e., it leads to fewer statistically significant differences). The outcome of the multiple comparisons confirmed that the maximum participation group had higher recall scores than did the minimum participation group. F was significant at the 0.05 level of probability ($F(2, 128) = 10.905$, $p<0.05$). Differences between the remaining comparisons were not sufficient to reach statistical significance, or to warrant further discussion (maximum vs. moderate: $F(2, 128) = 2.132$, $p>0.05$; moderate vs. minimum: $F(2, 128) = 3.842$, $p>0.05$).

The statistically significant interaction was apparently the result of lower mean recall scores for the maximum participation group that received the logo in the test booklet. A comparison between the logo and no logo conditions for the maximum participation group was significant at the 0.05 level: $F(2, 128) = 7.57$. Further analysis showed that the logo did not significantly affect the moderate participation group ($F(2, 128) = 1.003$, $p>0.05$) or the minimum participation group ($F(2, 128) = 0.367$, $p>0.05$).

The inhibited performance of the maximum participation - logo booklet group is an unexpected finding. Apparently the use of the logo in the test booklet created a condition that actually decreased the recall of learned information in the television announcement. The exact nature of this interference is not known. Post hoc analysis of these results leads to the conjecture that the repetition of the logo in the questionnaire resulted in some kind of premature closure on the high participative announcement. This closure could have occurred as a function of the Coast Guard logo interacting with the source given in the announcement for the answer to the rules of the road question. The kind of "mental tension" aroused by the unanswered question may have been sufficiently reduced when subjects saw the logo, that subsequent recall of announcement-related information was lowered. Put another way, the presence of the logo reduced arousal of participation which subsequently reduced the ability to recall the information. A second possible explanation is that the presentation of the two identifical logos in close temporal proximity on the television tag and in the booklet drew attention away from the other stimuli (information) in the message, with a resultant loss of recall of those other stimuli. Such post hoc theorizing is always speculative and can only be resolved through further experimentation.

For present purposes, it can be said that the experimental design was substantially different, with respect to the use of the logo, from real-life conditions which occur in the course of an actual educational program. In this experiment, subjects encoutered the logo within minutes of viewing a telecast message containing that logo; and this occurred in the context of responding to a test booklet. The advantages and proven practical value of logo usage in the conduct of campaigns far outweight any possible interference effects suggested in this demonstration. The use of logos in advertising and in campaigns is an established practice which is highly recommended on the basis of actual results with extensive use. The outcome of this experiment is intriguing, nonetheless.

It is apparent that there are advantages with respect to impressions created and recall of information when viewer participation in the message is increased. Subsequent production of PSAs where this general information format is followed (posing a problem, and asking that the viewer find his answer by some active participatory means) may well provide a valuable tool to reaching boaters. The only certain method for determining the actual value of this approach to message design is to test a series of telecasts in real-life situations. The dependent variables in this case would very likely be the number of boaters registering for the boating course being announced in the recorded telephone message.

4.3 Demonstration of Effectiveness of Layout and Design in Pamphlet Production

4.3.1 Background

There are a number of principles which have been developed by professionals in the print media for maximizing communication effectiveness of the printed message. In the present report, the recommendation has been proferred that the development of educational materials be consigned to experienced professional personnel for creation and production. While this entails additional expense on the part of the client, it does increase the likelihood that the materials produced will serve their intended function. The purpose of the demonstration described here is to illustrate that systematic use of good print media design principles can have a favorable effect on the amount of information retained by readers.

Two experimental versions of a pamphlet on small boat stability were prepared for the demonstration. The booklets were identical as far as factual content was concerned. However, one was designed as the model which attempted to make use of the major principles of good layout and design. The second version was designed to be a comparison form. The comparison booklet systematically omitted the details of layout and design in ways that characterized many of the existing boating educational materials (see Sections 2.2.4 and 2.2.5). These variations for comparison were made without withholding any information included in the model booklet. The actual differences between the two pamphlets are detailed in Table 35.

The demonstration included two separate tasks to assess subjects' recall of information contained in the booklets. Of course, it was expected that readers of the model version would show better recall than those readers of the comparison version. The first task involved a reading session in a non-distracting environment where subjects had the singular task of reading only the experimental pamphlet. The second task was actually a separate exploratory study to approximate more closely real life conditions under which a person would encounter reading an educational pamphlet, i.e., the pamphlet was presented among other competing reading materials. Two additional "foil" pamphlets were given to subjects along with the experimental pamphlets. The foil pamphlets also addressed aspects of boating education, but they were somewhat shorter than

TABLE 35. DIFFERENCES IN LAYOUT AND DESIGN BETWEEN THE MODEL AND COMPARISON VERSIONS OF THE EDUCATIONAL PAMPHLET

Item Differences	Model Form	Comparison Form
Pages numbered	Yes	No
Size type font	11 pt. Garamond	10 pt. Garamond
Wide margins, loose spacing (between words and between lines)	Yes	No
Use of frequent headings	8*	0
Use of bullets for emphasis	10	5
Selective use of color for headings, bulleted items, and bullets	Yes	No
Use of question format in headings	Yes	No
Repetitive use of key stimulus words (e.g., "Remember...")	Yes	No
Short paragraphs (small chunks of information)	Yes	No
Captions for illustrations	20	15
Clarifying descriptions within illustrations	2	1
Indented format for definitions	Yes	No
Repetition of logo at end	Yes	No

*Numbers are frequency counts of occurrence of a particular item.

the experimental pamphlets. Time given for reading the three pamphlets was too short for a full and comprehensive reading of each document. It was believed that the shorter time here would show some selectivity for time and effort spent with the experimental pamphlets, not unlike how a person might read a pamphlet if he picked it up while on an outing, or while shopping.

In short, the first task was meant to determine subjects' recall of information in the pamphlets under optimum "laboratory" conditions. The second task was meant to determine subjects' recall of information in the pamphlets under conditions more closely approximating real life.

4.3.2 Method for Pamphlet Demonstration

4.3.2.1 Subjects - Subjects participating in the evaluation of the pamphlets were 121 University of Alabama at Tuscaloosa undergraduates enrolled in introductory psychology courses. They were recruited on the basis of their having an interest in, or experience with, recreational boating. All volunteers for the experiment received credit toward a grade for the course, and a small gratuity (a disposable flashlight) given on the part of Wyle Laboratories.

4.3.2.2 Procedure for Task 1: Laboratory Reading and Recall - Eight experimental sessions were held over a two-day period. Ninety subjects participated in the sessions with between five and 21 subjects showing up per session. The experiment was conducted in a conference room located in the Student Union Building on the Tuscaloosa campus. As subjects arrived, they were assigned to sit on alternate sides of the room in the order of their arrival; e.g., every other person arriving sat on the left hand side of the room. A sign-up sheet for verification of participation for course credit, and for the gratuity was circulated while subjects waited for the session to begin.

The experimenter read the instructions for the task when all subjects for the session had arrived and been seated:

> *"Thank you for coming today. This project, which deals with recreational boating, is being conducted by Wyle Laboratories for the U. S. Coast Guard. Wyle is a national company with a large facility in Huntsville. You will be given a pamphlet dealing with recreational boating. Please read this pamphlet from front to back, without first scanning it. Once you have finished reading, you may go back and reread any parts that you wish. Time alloted for reading will be about 20 minutes. When you have finished, put the pamphlet into the brown envelope which you receive with the pamphlet and wait. When everyone has finished, we will ask you for a reaction to the pamphlet, using a questionnaire."*

Pamphlets were then distributed such that all subjects on one side of the room received the model version of the pamphlet, and those on the other side received the comparison pamphlet. On the first day, the model version was given to the left side of the room, and on the second day, to the right side. After the allotted 20 minutes the experimenter reiterated the request for subjects to put their pamphlets into the envelopes. Then he handed out the recall tests. Most subjects finished their reading before the 20 minute limit; in one session all subjects had finished by 17 minutes. The experimenter then continued reading instructions:

> *"There are two parts to this list of questions. (Experimenter held up the questionnaire for subjects to see.) Part One is information about you that will enable us to better understand the results of the project; for example, your age, class rank, etc. Part Two is a list of 21 questions that concern the pamphlet you have just read. Please answer all the questions in the order they are given. In Part Two, if you have answers for the questions from other sources, such as a boating safety course, or your own actual experience as a boater, please try to answer the questions on the basis of what this pamphlet says. Do not look back at the pamphlet, however. Time allotted for questions is about 10 minutes. When you have finished, put your questionnaire into the envelope with the pamphlet and remain seated until everyone is finished. Then the envelopes will be collected. Your U. S. Coast Guard complimentary gifts for helping us in this study will be handed out when all testing for the project has been completed. They will be given to you in your psychology class at the end of this week or early next week. OK - go ahead."*

At the end of 10 minutes all subjects had completed their questions, and the experimenter collected the envelopes containing the pamphlets and tests.* The students were told that a short outline of the experiment would be posted after the study was completed to satisfy their curiosity about the purpose of the study. They were requested not to discuss the experiment with anyone else until after they had received their gifts.

---

*The questionnaire is presented in Appendix R.

4.3.2.3 Procedure for Task 2: Simulation Reading and Recall - The procedure for the second task was similar to that used in the laboratory task. In the second task five sessions were held, with between two and 11 subjects participating in each, for a total of 31 subjects. They were each given three pamphlets: "Safe Skippers, Ahoy" by Allstate Insurance Company, "Explosion Protection" by the Coast Guard, and either the model or the comparison version of the test pamphlet, depending upon the experimental group to which each subject was assigned. The pamphlets were always presented in the same order, with the Allstate booklet on top, the experimental pamphlet in the middle, and the Coast Guard pamphlet on the bottom. In this demonstration, subjects were asked only to familiarize themselves with all of the materials, and then to await further instructions. They were given 10 minutes to spend on all the materials and then given a modification of the recall test used in the first task (see Appendix S). The modification involved omission of five items because they addressed information contained in one or both of the foil pamphlets as well as in the experimental pamphlets.

4.3.3 Results of Pamphlet Demonstration

4.3.3.1 Task 1: Laboratory Reading and Recall - Data for 89 subjects were analyzed (one improperly completed questionnaire was omitted). Of these, 58% were female, 42% male. They ranged from 17 to 22 years of age, with a mean age of 18.4 years. Most subjects (76.4%) were freshmen; 18% were sophomores; 4.5% were juniors; 1.1% were seniors. Subjects' amount of boating experience and whether or not they had taken a formal boating course were each crosstabulated with recall scores. Chi-square analysis was used to determine whether subjects' boating experience or their having taken a formal course were related to the recall scores. Both crosstabulations were not statistically significant at the 0.05 level of probability ($\chi^2(9) = 5.515$; and $\chi^2(3) = 0.879$ respectively). Apparently, differences in recall scores were independent of prior boating experience or attendance in a boating course. The crosstabulations and outcomes of the statistical tests are presented in Table 36.

Recall scores for each of the experimental groups were compared using the mean values of each distribution. Mean values for the model and comparison versions were $\overline{X} = 13.4$ and $\overline{X} = 11.9$ respectively. In order to determine whether the recall scores differed significantly for the two pamphlets, means for the two groups were compared using a two-tailed t-test. The computed t was significant ($t(87) = 2.13$, $p<0.05$).

TABLE 36. BOATING EXPERIENCE AND BOATING COURSES, AND RECALL SCORES FOR SUBJECTS IN THE LABORATORY READING PAMPHLET EXPERIMENT

ITEM		RECALL SCORE VALUES				Row Totals	Chi-Square and Significance
		<5	6-10	11-15	16-20		
Boating Experience (in hours)	<20	1	10	18	6	35 (39%)	$\chi^2(9)=5.515$
	20-100	0	6	15	5	26 (29%)	$p>0.05$ n.s.
	101-500	0	3	9	4	16 (18%)	
	>500	1	1	8	2	12 (13%)	
TOTAL						89 (100%)	
		<5	6-10	11-15	16-20		
Took a Formal Course		0	4	8	4	16 (18%)	$\chi^2(3)=0.879$ $p>0.05$ n.s.
No Formal Course		2	16	40	13	71 (82%)	
TOTAL						87 (100%)	

TYPE OF BOATING COURSE TAKEN	Frequency and Percent*
No Formal Course	71 (79.7%)
Coast Guard Auxiliary Course	3 (3.4%)
Power Squadron Course	2 (2.2%)
State Sponsored Course	0 (-)
Boy/Sea Scout Course	5 (5.6%)
Local Boating Club Course	2 (2.2%)
Public School Course	2 (2.2%)
College Boating Course	0 (-)
Summer Camp Boat Training	10 (11.2%)
Marine Dealers/Marina Operator Training	2 (2.2%)
YMCA Course	4 (4.5%)
Girl Scout Course	1 (1.1%)
Red Cross Course	1 (1.1%)
Missing	2 (2.2%)

---

* In some cases a person listed more than one boating course. Percentages were based on a total of 131 persons.

As predicted, those persons who read the model pamphlet scored higher than those persons who read the comparison pamphlet. The data for the comparison are shown graphically in Figure 7.

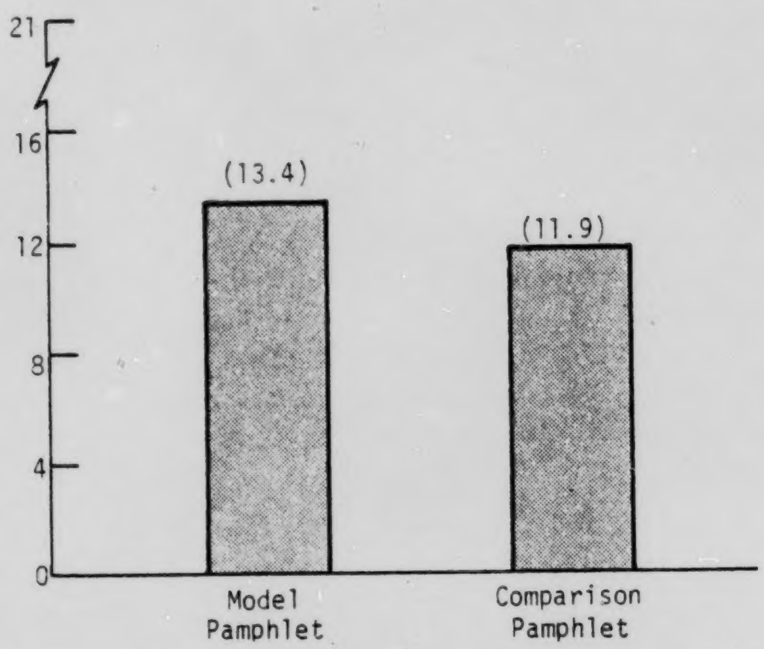


FIGURE 7. LABORATORY READING: MEAN RECALL SCORES FOR PERSONS RECEIVING ALTERNATE VERSIONS OF THE EXPERIMENTAL PAMPHLETS

4.3.3.2 Task 2: Simulation Reading and Recall - This demonstration included 31 persons: 29% were male, and 71% were female. Age ranged from 17 to 21, with a mean of 18.2. Most (83.9%) were freshmen, 9.7% were sophomores, and 6.5% were juniors. Again, as in Task 1, boating experience and whether or not subjects had taken a formal boating course were crosstabulated with recall scores on the test. The outcome of these comparisons is presented in Table 37. Chi-square analysis was used to determine whether either of the crosstabulations were statistically significant. Neither comparison was significant at the 0.05 level of probability ($\chi^2(6) = 4.788$ and $\chi^2(2) = 4.732$ respectively). Again, recall score was independent of boating experience and attendance in a boating course.

Recall scores for each of the experimental groups were also compared using the mean values for each distribution. Mean values for the model and comparison versions were $\overline{X} = 6.88$ and $\overline{X} = 4.93$. The difference between the mean values for recall was tested for statistical significance using a two-tailed t-test.

TABLE 37. BOATING EXPERIENCE AND BOATING COURSES FOR SUBJECTS IN THE SIMULATION READING EXPERIMENT AND RECALL SCORES

ITEM		RECALL SCORE VALUES			Row Totals	Chi-Square and Significance
		<5	5-8	9-12		
Boating Experience (in hours)	<20	6	4	2	12 (38.7%)	$\chi^2(6)=4.788$
	20-100	3	7	0	10 (32.3%)	$p>0.05$ n.s.
	101-500	2	3	1	6 (19.4%)	
	>500	1	1	1	3 (9.7%)	
	TOTAL				31(100.0%)	
		<5	5-8	9-12		
Took a Formal Course		1	3	2	6 (19%)	$\chi^2(2)=4.732$ $p>0.05$ n.s.
No Formal Course		11	12	2	25 (81%)	
TOTAL					31 (100%)	

TYPE OF BOATING COURSE TAKEN	Frequency and Percent*
No Formal Course	25 (80.6%)
Coast Guard Auxiliary Course	1 (3.2%)
Power Squadron Course	1 (3.2%)
State Sponsored Course	1 (3.2%)
Boy/Sea Scout Course	1 (3.2%)
Local Boating Club Course	0 (-)
Public School Course	0 (-)
College Boating Course	0 (-)
Summer Camp Boat Training	2 (6.5%)
Marine Dealers/Marina Operator Training	0 (-)
YMCA Course	2 (6.5%)
Girl Scout Course	0 (-)
Red Cross Course	0 (-)
Missing	0 (-)

---

* In some cases a person listed more than one boating course. Percentages were based on a total of 131 persons.

The outcome was statistically significant ($t(29) = 2.178$, $p<0.05$). Those persons who received the model pamphlet among the foil pamphlets recalled more information than did persons who received the comparison pamphlet. The data are shown graphically in Figure 8.

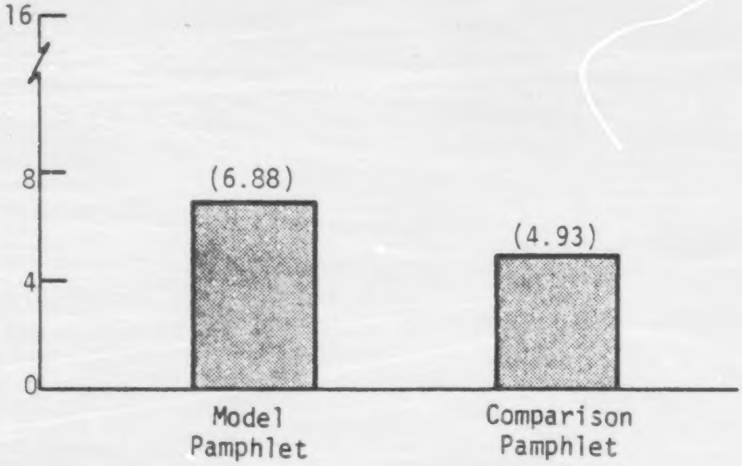


FIGURE 8. SIMULATION READING: MEAN RECALL SCORES FOR PERSONS RECEIVING ALTERNATE VERSIONS OF THE EXPERIMENTAL PAMPHLETS (FIVE ITEMS OMITTED FROM ORIGINAL 21 ITEM TEST)

The findings of both of these tasks demonstrate that systematic use of professional journalistic principles in the layout and design of an educational pamphlet favorably influence the retention of the message content. It is noteworthy that this result is consistent over the two conditions of reading, i.e., the optimal laboratory reading and the simulated brief reading among competing materials. The demonstration lends strong support to the need for contracting pamphlet preparation only to experienced professionals with expertise in both pamphlet design, and in boating educational materials.

REFERENCES

1. Robertson, Leon S. "The Great Seat Belt Campaign Flop." *Journal of Communication*.. Autumn 1976, Volume 26:4. pp. 41-45.

2. McGuire, Frederick L. and Ronald C. Kersh. *An Evaluation of Driver Education*. University of California Press, Berkeley and Los Angeles. 1969.

3. Conley, John A. and Russel Smiley. "Driver Licensing Tests as a Predictor of Subsequent Violations." *Human Factors*. Vol. 18, No. 6, December 1976. The Johns Hopkins University Press, Baltimore, Maryland.

4. Berelson, B. *Content Analysis in Communication Research*. Glencoe, Ill.: The Free Press of Glencoe, 1952.

5. *Boating Statistics - 1976*. CG-357.

6. *Boating Statistics - 1975*. CG-357.

7. *Traffic Safety '76*: A report by the President on the Administration of the Highway Safety Act of 1966, as Amended. January 1, 1976 - December 31, 1976: U.S. Department of Transportation, NHTSA, FHA.

8. *The Use of Mass Media for Highway Safety*. DOT HS-801 209, June 1974, U. S. Department of Transportation, NHTSA, Office of Driver and Pedestrian Programs, Washington, DC 20590.

9. Bass, B.M. and J.A. Vaughn. *Training in Industry: The Management of Learning*. Belmont, Calif., Brooks/Cole Publ. Co., 1966.

10. Steiner, G.A. *The People Look at Television: A Study of Audience Attitudes*. N.Y. Alfred A. Knopf, 1963.

11. Bower, R.T. *Television and the Public*. N.Y. Holt, Rinehart, and Winston, Inc., 1973.

12. Bower, R.T. *Changing Public Attitudes toward Television and Other Mass Media*, 1959-1976. New York: The Roper Organization, 1977.

13. *Recreational Boating in the Continental United States in 1973: The Nationwide Boating Survey*. October 1974.

14. *Handbook of Super 8 Production*. New York: Media Horizons Press, 1976 (United Business Publications, Dept. MD77C, 750 3rd Avenue, New York, NY 10017).

15. *Hope Reports Video II*. Vol. 3, 1974 Series. Rochester, NY: Hope Reports, Inc., 1975.

APPENDIX A. MAILING LIST FOR BOATING EDUCATIONAL MATERIALS

STATES AND TERRITORIES

*Mr. Tom Shackleford, Director
Division of Water Safety
Dept. of Conservation and
Natural Resources
State Administrative Building
Montgomery, AL 36104

Mr. Pat Wellington, Commissioner
Department of Public Safety
Pouch "N"
Capitol Building
Juneau, AK 99801

*Mr. Tom Alexander
Boating Administrator
Arizona Game & Fish Dept.
2222 West Greenway Road
Phoenix, AZ 35068

Mr. J. B. Welch
Boating Administrator
Arkansas Game & Fish Comm.
#2 Capitol Mall
Little Rock, AR 72201

*Mr. Frank Torkelson, Director
Dept. of Navigation & Ocean Dev.
1416 Ninth Street
Sacramento, CA 95814

Mr. Pat L. Hatch
Boat Safety Coordinator
Division of Parks & Outdoor Rec.
Department of Natural Resources
1845 Sherman Street
Denver, CO 80203

*Mr. Douglas M. Costle, Comm.
Boating Div. Dept. of Env. Protection
State Office Building
Hartford, CT 06115

*Mr. George W. Stewart, Jr.
Boating Administrator
Division of Fish & Wildlife
Dept. of Natural Resources &
Environmental Control
Tatnall Building
Dover, DE 19901

*Mr. Harmon Shields, Ex. Director
Dept. of Natural Resources
Larson Building
Tallahassee, FL 32304

Mr. Robert S. Baker
Coordinator of Special Services
Game and Fish Division
Department of Natural Resources
Trinity-Washington Building
Atlanta, GA 30334

Mr. Thomas H. Stratton
Boating Administrator
Dept. of Transportation
Harbors Division
79 S. Nimitz Highway
Honolulu, HI 96813

*Mr. Richard P. Peterson, Director
State Dept. of Parks & Recreation
State House
Boise, ID 83707

*Mr. Anthony Dean, Director
Dept. of Conservation
400 South Spring Street
Springfield, IL 62706

Mr. Phillip Ohmit
Boating Law Administrator
Law Enforcement Division
Department of Natural Resources
State Office Building
Indianapolis, IN 46204

---

* Responding agencies sending materials.

Mr. Roy L. Downing
Superintendent of Waters
Iowa Conservation Commission
300 Fourth Street
Des Moines, IA 50319

Mr. Oliver J. Gasswint
Boating Act Administrator
Forestry, Fish and Game Commission
P. O. Box 1028
Pratt, KS 67124

*Mr. H. Doug Shoulders, Administrator
Division of Water Enforcement
Department of Transportation
State Office Building
Frankfort, KY 40601

Mr. Hurley Campbell
State Boating Law Administrator
Wild Life & Fisheries Commission
400 Royal Street
New Orleans, LA 70130

*Mr. Robert H. Johnson, Director
Bureau of Watercraft Registration
and Safety
State Office Building
Augusta, ME 04330

*Mr. B. B. Crandall
Dept. of Natural Resources
Tawes State Office Building
Annapolis, MD 21401

Mr. Alfred F. Nataloni, Director
Div. of Marine & Recreational Vehicles
Department of Public Safety
64 Causeway Street
Boston, MA 02114

*Mr. Robert W. Dyke, Administrator
Marine Safety Section
Department of Natural Resources
Stevens T. Mason Building
Lansing, MI 48926

*Mr. J. P. Liemandt, Director
Division of Enforcement
304 Centennial Building
St. Paul, MN 55155

*Col. W. C. Murphy, Commissioner
Division of Water Safety
Missouri State Water Patrol
911 Leslie Boulevard
Jefferson City, MO 65101

*Mr. Leonard L. Bouler, Director
Mississippi Boat & Water Safety Comm.
Mississippi Manufacturers' Assoc. Bldg
Suite 240-720 N. President Street
Jackson, MS 39202

Mr. Donald A. Malmberg
Boating Safety Officer
Enforcement Division
Dept. of Fish and Game
Helena, MT 59601

Mr. Dudley P. Osborn
State Boating Law Administrator
Nebraska Game & Parks Commission
2200 North 33rd Street
Lincoln, NE 68503

*Mr. William G. Parsons
Chief of Law Enforcement
Dept. of Fish and Game
1100 Valley Road
P. O. Box 10678
Reno, NV 89510

Mr. Alton H. Stone, Director
Division of Safety Services
Department of Safety
85 Loudon Road
Concord, NH 03301

CPT B. Russell Henry, Chief
Bureau of Marine Law Enforcement
Dept. of Environmental Protection
P. O. Box 1889
Trenton, NJ 08625

*Mr. C. E. Rouch
Boating Administrator
State Park & Recreation Commission
P. O. Box 1147
Sante Fe, NM 87501

*Mr. James J. O'Brien, Director
Division of Marine and Rec. Vehicles
State Parks and Recreation
South Mall
Albany, NY 12238

Mr. Charles R. Fullwood, Jr., Chief
Div. of Motorboats and Water Safety
Wildlife Resources Commission
325 N. Salisbury Street
Raleigh, NC 27611

*Mr. Russel W. Stuart, Commissioner
Game anf Fish Department
2121 Lovett Avenue
Bismark, ND 58501

*Mr. F. Michael Heys, Ed. Spec.
Division of Watercraft
Dept. of Natural Resources
Fountain Square
Columbus, OH 43224

LT Bill Woford, Director
Dept. of Public Safety
Oklahoma Highway Patrol
Lake Patrol Division
P. O. Box 11415
Oklahoma City, OK 73111

*CDR James A. Hadley, Director
State Marine Board
3000 Market Street NE, #505
Salem, OR 97310

CPT Charles E. Leising, Director
Bureau of Waterways
Pennsylvania Fish Commission
P. O. Box 1673
Harrisburg, PA 17120

Mr. Edward D. Bliven
Boating Law Administrator
Dept. of Natural Resources
Division of Boating Safety
Quonset Administration, Bldg #7
Davisville, RI 02854

*Mr. Thomas C. Welch, Jr., Chief
Division of Boating
Wildlife & Marine Resources Dept.
P. O. Box 12559
Charleston, SC 29412

*Mr. E. R. Lamster
Law Enforcement & Boating Coordinator
Dept. of Game, Fish and Parks
State Office Building #1
Pierre, SD 57501

*Mr. Gary T. Myers, Chief
Boating Division
Tennessee Wildlife Resources Agency
Ellington Agriculture Center
P. O. Box 40747
Nashville, TN 37204

*Mr. Charles M. Talbert, Dir. Water Safety
Marine Enforcement
Parks and Wildlife Department
John H. Reagan State Office Building
Austin, TX 78701

*Mr. Ted Tuttle
Boating and Recreation Vehicle Chief
Division of Parks and Recreation
1596 West North Temple
Salt Lake City, UT 84116

CPT Harold F. Dean, Director
Marine Division
Department of Public Safety
Montpelier, VT 05602

*Mr. Chester Phelps
Executive Director
Commission of Game & Inland Fisheries
P. O. Box 11104
Richmond, VA 23230

Mr. Dan B. Stack, Administrator
Office of Boating/Water Safety
Washington State Parks and
Recreation Commission
P. O. Box 1128
Olympia, WA 98504

COL Raymond V. Eye, Chief
Law Enforcement Section
Dept. of Natural Resources
1800 East Washington Street
Charleston, WV 25305

*Mr. Dale P. Morey
Supervisor of Boating Safety
Department of Natural Resources
P. O. Box 450
Madison, WI 53701

Mr. William S. Kazas, Watercraft Supervisor
Game and Fish Department
P. O. Box 1589
Cheyenne, WY 82001

Mr. Morris Victor Rosenbloom
NASBLA Executive Director
2000 N Street, NW
Washington, DC 20036

Assistant Chief John S. Hughes
Acting Chief of Police
Metropolitan Police Department
300 Indiana Avenue NW
Washington, DE 20001

Commander R. Bell
Commanding Officer
U.S. Coast Guard Station
P. O. Box 249
Pago Pago, AQ 96799

Mr. Jose C. Quintanilla
Director of Public Safety
Government of Guam
Agana, Territory of Guam 96910

Mr. Jose R. Garcia, Assistant Chief
Operations Division
Maritime Department
Puerto Rico Ports Authority
San Juan, PR 00936

*Dr. Arthur E. Dammann
Boating Law Administrator
Dept. of Conservation & Cultural Affairs
Lagoon Fishing Center
Estate Frydenhoj
St. Thomas, Virgin Islands 00801

FEDERAL AGENCIES

Bureau of Land Management
Department of the Interior
Washington, DC 20240

Bureau of Outdoor Recreation
Division of Cooperative Services
Department of the Interior
Washington, DC 20240

*Bureau of Sport Fisheries and Wildlife
Department of the Interior
Washington, DC 20240

*Canadian Dept. of Transport
Marine Services
Ottawa, Ontario, Canada

*Corps of Engineers
Department of Army
Dale A. Crane
Washington, DC 20314

National Forest Service
Department of Agriculture
Washington, DC 20250

National Park Service
Fred Tidwell
U. S. Department of the Interior
Washington, DC 20240

*U. S. Dept. of Commerce
National Weather Service
Distribution Division C44
6501 Lafayette Avenue
Riverdale, MD 20854

*U. S. Department of Commerce
NOAA-National Ocean Survey
11800 Old Georgetown Road
Rockville, MD 20852

U. S. Government Printing Office
Superintendent of Documents
Washington, DC 20402

U. S. Naval Oceanographic Office
Navy Department
Washington, DC 20390

PRIVATE

American Alliance for Health, Physical Education and Recreation
George F. Anderson
1201 16th Street, NW
Washington, DC 20036

*American Boat & Yacht Council,
Ralph Thatcher
15 E. 26th Street
New York, NY 10010

American Camping Association
Mike Kromer
Bradford Woods
Martinsville, IN 46151

American Canoe Association
John S. Thomason
23 Grafton Street
Chevy Chase, MD 20015

American Power Boat Association
James H. Jost
11707 W. Locust Street
Wauwatosa, WI 53222

*American Water Ski Association
William D. Chifford
7th Street and Avenue G, SW
Winter Haven, FL 33880

American White Water Affiliation
2019 Addison Street
Chicago, IL 60618

*American National Red Cross
Robert F. Burnside
18th and D. Streets, NW
Washington, DC 20006

American Whitewater Affiliation
P. O. Box 1584
San Bruno, CA 94066

Anheuser-Bush, Inc.
St. Louis, MO 63118

Association Press
291 Broadway
New York, NY 10007

Bass Anglers Sportsmans Society
P. O. Box 3044
Montgomery, AL 36109

BOAT/U. S. Dept. 2711
Washington National Headquarters
5261 Port Royal Road
Springfield, VA 22151

Boat Owners Association of the U.S.
Richard Schwartz
5261 Port Royal Road
Springfield, VA 22151

Boating Industry Associations
Matt Kaufman
401 N. Michigan Avenue
Chicago, IL 60611

Boating Writers International
Tom Johnson
2825 North Mayfair Road
Milwaukee, WI 53222

Boy Scouts of America
William J. Lidderdale
North Brunswick, NJ 08902

*Canadian Red Cross Society
Wayne D. Schafer
95 Wellesley Street East
Toronto, Ontario, Canada
M4Y 1H6

Cornell Maritime Press
Cambridge, MD 21613

PRIVATE

Creativision, Inc.
295 Fourth Street
New York, NY 10014

*DANFORTH
500 Riverside Industrial Parkway
Portland, ME 04103

*The Economics Press, Inc.
12 Daniel Road
Fairfield, NJ 07006

EVINRUDE MOTORS
4143 N. 27th Street
P. O. Box 663
Milwaukee, WI 53201

Evergreen Paddleways
1416 21st Street
Two Rivers, WI 54241

Evergreen Safety Council
822 John Street
Seattle, WA 98109

Films Unlimited, Inc.
P. O. Box 37
Ft. Lauderdale, FL 33302

*Gulf Oil Company - U. S.
Marketing Department
Room 1126, Gulf Building
712 Main Street
Houston, TX 77002

International Association of
Chief of Police
James A. F. Kelly
Eleven Firstfield Road
Gaithersburg, MD 20706

Izaak Walton League of America
1800 North Kent
Arlington, VA 22209

*Johnson Motors Dealer
Waukegan, IL 60085

*Kiekhaefer Mercury
Public Relations
1939 Pioneer
Fond Du Lac, WI 54935

Motor Boating & Sailing (Books)
P. O. Box 2319
FDR Station
New York, NY 10022

*Michigan State University
Dr. Roy K. Niemeyer
211 M.I.M.
East Lansing, MI 48824

Mobil Oil Corporation
150 East 42nd Street
New York, NY 10017

*Modern Talking Pictures
2323 New Hyde Park Road
New Hyde Park, NY 11040

Morse Controls Division
21 Clinton Street
Hudson, OH 44236

*National Aquatics Council
Ms Margaret McMillian
P. O. Box 57
University of Southern Louisiana
Lafayette, LA 70501

National Association of Engine &
Boat Manufacturers, Inc.
George Rounds
P. O. Box 5555
New York, NY 10017

National Association of State
Boating Law Administrators
John J. Kent
P. O. Box 250
Trenton, NJ 08625

PRIVATE

National Boating Federation
William H. Gray, Jr.
1691 University Way
San Jose, California 95126

National Council of the YMCA
291 Broadway
New York, NY 10007

National Fire Protection Assoc.
Kent Savage
60 Batterymarch Street
Boston, MA 02109

National Ocean Survey
Distribution Division (C-44)
Riverdale, MD 20840

*National Oceanic & Atmospheric
Administration
Harley D. Nygren
Rockville, MD 20852

National Recreation and Park Assoc.
1700 Pennsylvania Avenue NW
Washington, DC 20006

National Safe Boating Association
Donald Sullivan
Chotin Transportation, Inc.
One Shell Square, Suite 1414
New Orleans, LA 70139

*National Safety Council
Ben Harris, Public Safety
425 N. Michigan Avenue
Chicago, IL 60611

*National Water Safety Congress
Warren O. Hartke
210 N. 12th Street
St. Louis, MO 63101

National Wildlife Federation
1412 16th Street NW
Washington, DC 20590

Outboard Boating Club of America
Al Limburg
401 N. Michigan Avenue
Chicago, IL 60611

*Outdoor Empire Publishing, Inc.
Ms. Fay Ainsworth
Department BB
511 Eastlake Avenue E
Seattle, WA 98109

Outdoor Life Magazine
Mr. Bob Stearns
Popular Science Publishing Co.
355 Lexington Avenue
New York, NY 10017

*Pyramid Films
P. O. Box 1048
Santa Monica, CA 90406

Royce Publications
Mr. Patric Royce
Box 1067
Newport Beach, CA 92663

Silvermine Films, Inc.
49 West 45th Street
New York, NY 10036

*Solana Studios
4365 N. 27th Street
Milwaukee, WI 53216

*Somerset Importers, Ltd.
100 Park Avenue
New York, NY 10017

Tennessee Valley Authority
Recreation Resources Branch
Division of Reservoir Properties
Knoxville, TN 37902

*Texaco Waterways Service
135 East 42nd Street
New York, NY 10017

PRIVATE

*Underwriters' Laboratories, Inc.
Robert Van Brundt
207 East Ohio Street
Chicago, IL 60611

U. S. Canoe Association
6338 Hoover Road
Indianapolis, IN 46260

*U. S. Naval Institute
Annapolis, MD 21402

*U. S. Power Squadrons
Frank A. Stump, Jr.
221 Howard Drive
Bellair Beach, FL 33434

Van Nostrand Reinhold Co.
300 Pike Street
Cincinnati, OH 45202

Washington Regional Safe Boating Committee
Eric Swarthe
550 Water Street, SW
Washington, DC 20024

The Water Skier
7th St. and Avenue G SW
Winter Haven, FL 33880

*Weems and Plath, Inc.
48 Maryland Avenue
Annapolis, MD 21401

W. W. Norton
500 Fifth Avenue
New York, NY 10036

Young Mens Christian Association
Robert J. Orozco
291 Broadway
New York, NY 10007

240

INSURANCE COMPANIES

*AETNA
P. O. Box 1811
Birmingham, AL 35201

*Allstate Insurance Company
3585 Northside Parkway NW
Atlanta, GA 30302

American Institute of Marine Underwriters
99 John Street
New York, NY 10038

*American Insurance Association
85 John Street
New York, NY 10038

Atlas Assurance
P. O. Box 1
Columbia, SC 29202

Auto Owners
P. O. Box 15305
Nashville, TN 37215

Empire Fire and Marine
5050 Poplar Avenue
Suite 1208
Memphis, TN 38157

General Accident Group
4319 Memorial Drive
Suite N
Decatur, GA 30032

Hartford Insurance Group
P. O. Box 1720
Atlanta, GA 30301

Kemper Insurance Company
1401 Peachtree Street
Atlanta, GA 30309

Attention: John Barnes

Liberty Mutual
P. O. Box 2376
Gainesville, GA 30501

Nationwide Insurance
P. O. Box 278
Memphis, TN 38101

*New Hampshire Group
160 Woodcock Drive
Jacksonville, FL 32207

Ranger Insurance Company
P. O. Box 81385
Atlanta, GA 30366

*Reserve Insurance Company
2600 Century Parkway
P. O. Box 49266
Atlanta, GA 30359

SAFECO Insurance Companies
Marketing Services Department
4347 Brooklyn Avenue NE
Seattle, WA 98105

Seibels, Bruce and Co.
P. O. Box 7426A
Birmingham, AL 35223

South Carolina Insurance Co.
P. O. Box 1
Columbia, SC 29202

Southeastern Underwriters
P. O. Box 6067
Birmingham, AL 35209

St. Paul Companies
P. O. Box 30217
Avondale Station
Birmingham, AL 35222

*State Farm Insurance
P. O. Box 2661
Birmingham, AL 35297

BOAT MANUFACTURERS

Aeroglastics Corporation
543 Jones Street, Box 1009
Bucyrus, OH 44820

*Alumacraft Boat Company
315 W. St. Julien Street
St. Peter, MN 56082

*AMF Slickcraft Boat Division
500 East 32nd Street
Holland, MI 49423

Aristo-Craft Boat Corporation
665 Pylant Street NE
Atlanta, GA 30306

*Bayliner Marine Corporation
Box 24467
Seattle, WA 98134

Bristol Bluewater Boats, Inc.
Box 308
Norwalk, CT 06852

Brummett, Inc.
300 N. Altadena Drive
Pasadena, CA 91107

Cee Bee Manufacturing Co.
11756 Wright Road
Lynwood, CA 90262

Century Boat Company
Box 190
Manistee, MI 49660

Chris-Craft Corporation
555 SW 12th Avenue
Pompano Beach, FL 33060

*Correct Craft, Inc.
Box 12289
Orlando, FL 32809

*Cruise Boats, Inc.
2460 NW 151st Street
Opa-Locka, FL 33054

*Fabuglass Co., Inc.
6401 Centennial Boulevard
Nashville, TN 37209

*Fiberform, Division U.S. Industries
Box 14647
Spokane, WA 99214

*Glastron Boat Company
Austin,
Texas 78766

*Grumman Boats
Marathon,
New York 13803

IMP Boats, Div. Apeco Corp.
Box 347
Iola, KS 66749

K.M.S. Marine
158 Krause Road
P. O. Box S
Edwardsgurg, MI 49112

Invader Corporation
Box 420
Giddings, TX 78942

Lowe Industries
Int. Hwy. 44
Lebanon, MO 65536

Lund American, Inc.
Box 248
New York Mills, MN 56567

Mark Twain Marine Industries
Box 276, Industrial Park
W. Frankfort, IL 62896

*Martin Marine Co.
Box 251
Pepperrell Road
Kittery Point, ME 03905

*MFG Boat Company
55 Fourth Avenue
Union City, PA 16438

*Michi Craft Corporation
19995 19 Mile Road
Big Rapids, MI 49307

MonArk Boat Company
Box 210
Monticello, AR 71655

Montgomery Ward
619 W. Chicago Avenue
Chicago, IL 60607

Polarkraft Mfg. Co.
P. O. Drawer 708
Olive Branch, MS 38654

*Renken Boat Mfg. Co., Inc.
808 Folly Road
Charleston, SC 29412

Riehl Manufacturing Co.
2032 State Road
Port Clinton, OH 43452

Salt Marine, Inc.
Box 21584
Ft. Lauderdale, FL 33335

Sears, Roebuck and Company
Sears Tower
Chicago, IL 60684

*Sport-Craft, Inc.
Box 351
Perry, FL 32347

Squadron Yachts, Inc.
37 Gooding Avenue
Bristol, RI 02809

The Anchorage, Inc.
58 Miller Street
Warren, RI 02885

*Tide-Craft, Inc.
Box 796
Minden, LA 71055

Yar-Craft, Inc.
1104-1120 20th Avenue
Menominee, MI 49858

U.S. Fiber Glass Corporation
4016 Crystal Lake Road
McHenry, IL 60050

APPENDIX B-1. SAMPLE LETTER FOR STATES AND TERRITORIES

WYLE LABORATORIES

5 January 1977

Dr. Arthur E. Dammann, Boating Law Administrator
Dept. of Conservation and Cultural Affairs
Lagoon Fishing Center, Estate Frydenhoj
St. Thomas, Virgin Islands 00801

Dear Dr. Dammann:

The Marine Technology Division of Wyle Laboratories is currently under contract to the United States Coast Guard to research the general area of recreational boater education. The intent of the project is to reduce the number of recreational boating accidents and fatalities by developing alternative approaches for an overall instructional program.

The name of your organization was obtained from the National Safety Council's National Directory of Boating Safety Materials as a possible source for boating related materials. At this time, we are interested in reviewing the material that is currently used for educating the boating public.

The type of information that we are interested in would deal with any aspect of the pre- and post-accident situation. Information that will be helpful to us includes:

- Source persons and instructional materials that are available through local and state boating courses
- Supplemental boating safety material that is available to the boating public (handouts and pamphlets)
- Any other efforts that are made by local boating agencies to make boating safer (radio or television spots)

In addition to this material, information on:

- What methods are used to distribute boating material to the boating public
- The type of advertising used in making boating courses and other boating related activities available to the public

If you have any questions concerning the nature of our information needs or the intent of our project, please call us collect at 205/837-4411. I will appreciate very much any help you can give us.

Sincerely yours,

WYLE LABORATORIES
Eastern Operations

Michael J Pfauth
Research Engineer

EASTERN OPERATIONS
7800 Governors Drive West
Huntsville Alabama 35807
837-4411 Area Code 205
TWX 810-726-2225

APPENDIX B-2. LETTER PREPARED FOR FEDERAL AGENCIES

19 January 1977

Dear

The Marine Technology Division of Wyle Laboratories is currently under contract to the United States Coast Guard to research the general area of recreational boater education. The intent of the project is to reduce the number of recreational boating accidents and fatalities by developing alternative approaches for an overall instructional program.

The name of your organization was obtained from a list of boating related agencies as a possible source for boating materials. At this time, we are interested in reviewing the material that is currently used for educating the boating public.

We understand, through various sources, that you make the following materials available to the boating public and/or boating education organizations:

(SPECIFIC ITEMS REQUESTED LISTED HERE)

Information that will be helpful to us includes: (2 copies would be appreciated.)

- Source persons and instructional materials that are available through boating courses
- Supplemental boating safety material that is available to the boating public (handouts and pamphlets)
- Any other efforts that are made by your agency to make boating safer (radio, films, or television spots)

In addition to this material, information on:

- What methods are used to distribute boating material to the boating public
- The type of advertising used in making boating courses and other boating related activities available to the public

If you have any questions concerning the nature of our information needs or the intent of our project, please call us at (800) 633-2035/6. I will appreciate very much any help you can give us.

Sincerely yours,

WYLE LABORATORIES
Eastern Operations

Michael J. Pfauth
Research Engineer

olc

APPENDIX B-3. SAMPLE LETTER PREPARED FOR PRIVATE PUBLICATION COMPANIES

WYLE LABORATORIES

25 January 1977

Royce Publications
Mr. Patrick Royce
Box 1067
Newport Beach, CA 92663

Dear Mr. Royce:

The Marine Technology Division of Wyle Laboratories is currently under contract to the United States Coast Guard to research the general area of recreational boater education. The intent of the project is to reduce the number of recreational boating accidents and fatalities by developing alternative approaches for an overall instructional program.

The name of your organization was obtained from a list of boating related agencies as a possible source for boating materials. At this time, we are interested in reviewing the material that is currently used for educating the boating public.

The type of information that we are interested in could deal with any aspect of the pre- and post-accident situation. Information that will be helpful to us includes (two copies would be appreciated):

- Source persons and instructional materials that are available through boating courses
- Supplemental boating safety material that is available to the boating public (handouts and pamphlets)
- Any other efforts that are made by your agency to make boating safer (radio, films, or television spots)
- What methods are used to distribute boating material to the boating public
- The type of advertising used in making boating courses and other boating related activities available to the public.

If you have any questions concerning the nature of our information needs or the intent of our project, please call us at (800) 633-2085 or -2086. I will appreciate very much any help you can give us.

Sincerely,

WYLE LABORATORIES
Eastern Operations

Michael J. Pfauth
Research Engineer

MJPgsp

EASTERN OPERATIONS
7800 Governors Drive West
Huntsville, Alabama 35807
837-4411 Area Code 205
TWX 810-726-2225

APPENDIX B-4. SAMPLE LETTER PREPARED FOR INSURANCE COMPANIES

WYLE LABORATORIES

30 December 1976

Atlas Assurance
P. O. Box 1
Columbia, SC 29202

Gentlemen:

Your company was referred to us for assistance by one of the local insurance agents here in Huntsville, Alabama. Wyle Laboratories is currently developing alternative approaches for an instructional program for the United States Coast Guard. The intent of the program is to reduce the number of recreational boating accidents that occur in inland and coastal waters.

We are contacting all insurance companies that insure boats in order to compile materials that are sent to boaters pertaining to the operation of their boats. Specifically, we will appreciate it if you will send us information of the following questions:

1) Any brochures, booklets, or other materials on boat operation that you send to boaters who insure with your company.

2) Any materials pertaining to boat safety that you provide for boat insurees.

3) Information on whether or not your company provides premium discounts for boaters who have taken a boat education course; the names of the courses that qualify a boater for the discount; and if possible, a statement concerning why the particular courses were approved for the discount (what standards did the courses meet in order to be approved).

I will appreciate any help you can give us on these questions. Our concern here at Wyle is only to offer the Coast Guard the guidelines necessary for justifying and carrying out an effective overall instructional program. In the event that you have any questions about the nature of our project or our information needs, please call me at our toll free number (800) 633-2085 or -2086

Sincerely,

WYLE LABORATORIES
Eastern Operations

Eric B. Sager
Research Psychologist

EBS/gsp

EASTERN OPERATIONS
7800 Governors Drive West
Huntsville, Alabama 35807
837-4411 Area Code 205
TWX 810-726-2225

APPENDIX B-5. SAMPLE LETTER PREPARED FOR BOAT MANUFACTURERS

WYLE LABORATORIES

28 December 1976

Sears, Roebuck and Company
Sears Tower
Chicago, Illinois 60684

Gentlemen:

Currently, we are developing alternative approaches for an overall instructional program under contract with the United States Coast Guard. The intent of the program is to reduce the number of recreational boating accidents and fatalities that occur in inland and coastal waters.

We are contacting most boat manufacturers in order to compile a significant number of operation and safety materials that are available for boaters. Specifically, we will find useful any materials you will send us that pertain to the following:

1) Any operation brochures, manuals or booklets, and other materials that a boat owner receives routinely when he purchases one of your boats less than 20 ft in length, and materials made available to him when he makes a special request (e.g., boat is purchased second hand and operation materials are not available from the first owner).

2) Any materials pertaining to boat safety that you provide for owners of boats less than 20 ft routinely or on special request.

I will appreciate any help you can give us in getting the materials we need. Our concern here is only to offer the Coast Guard the guidelines necessary for justifying and carrying out an effective instructional program. In the event that you have any questions about the nature of our project or our request for materials, please call me at our toll free number (800) 633-2085 or -2086. Incidentally, the Wyle effort is independent of the recent BIA request for operating manuals.

Sincerely,

WYLE LABORATORIES
Eastern Operations

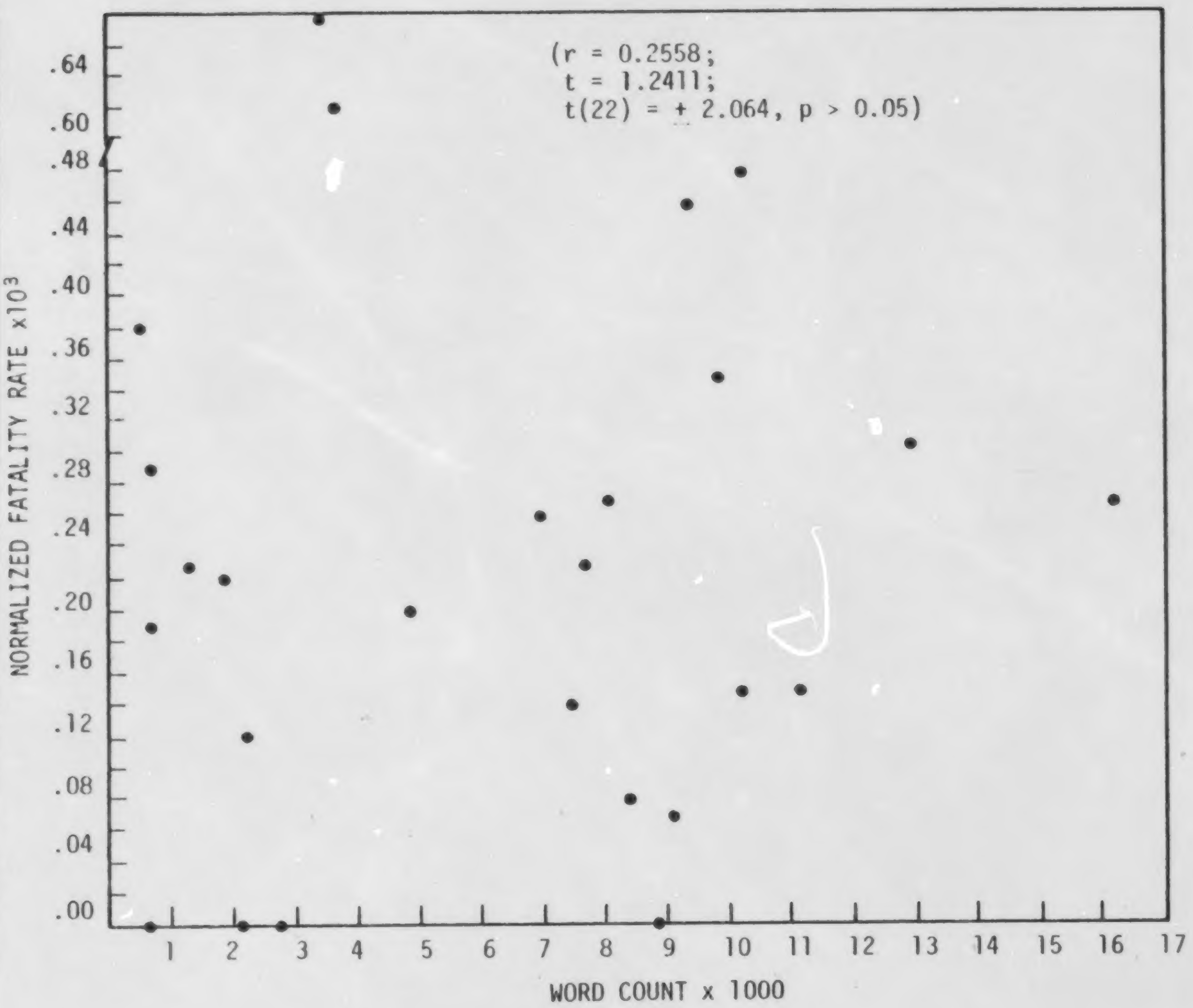
Eric B. Sager
Research Psychologist
Marine Technology

EBS/gsp

EASTERN OPERATIONS
7800 Governors Drive West
Huntsville, Alabama 35807
837-4411 Area Code 205
TWX 810 726 2225

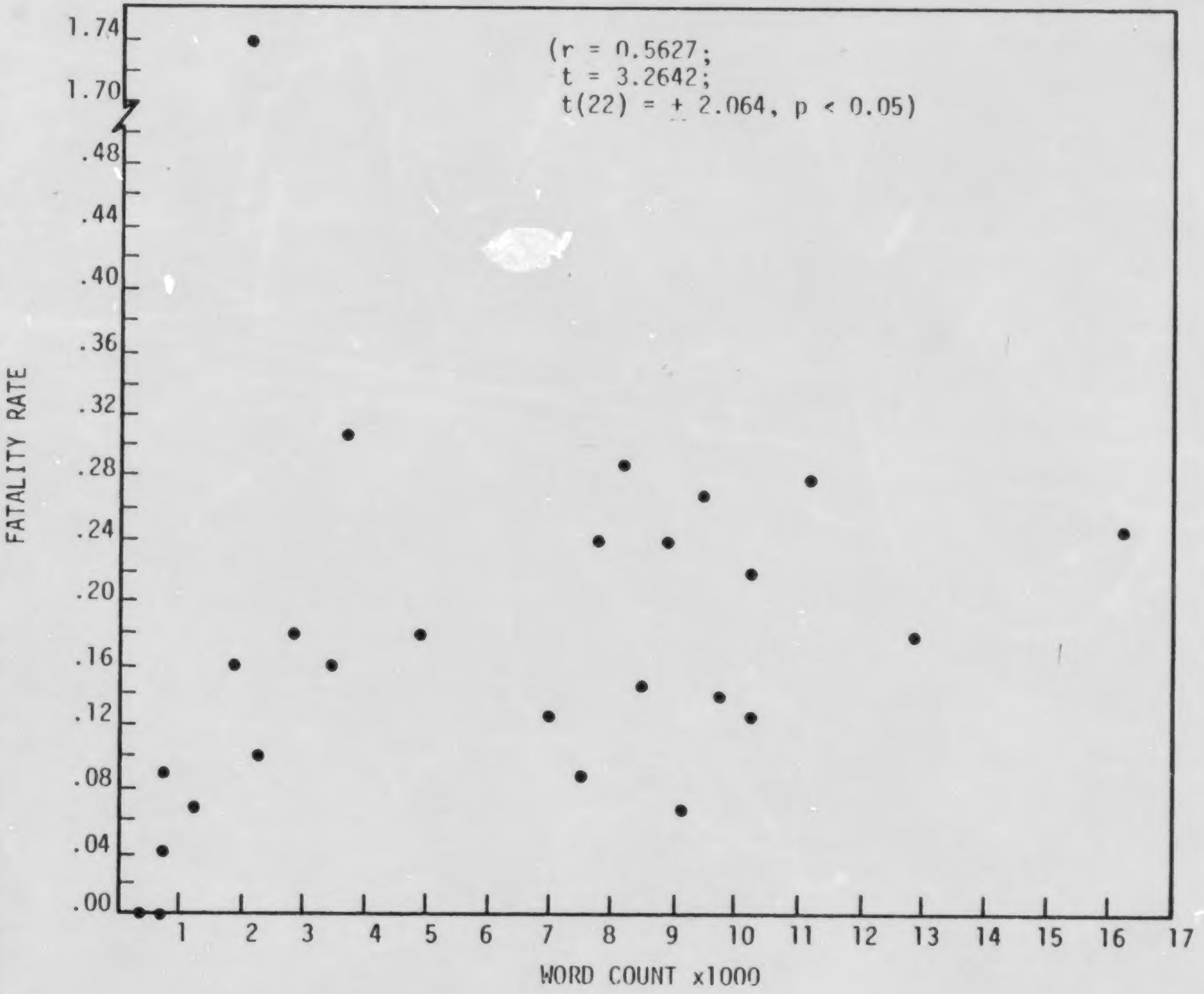
APPENDIX C. WORD COUNT VALUES OBTAINED IN QUANTITATIVE CONTENT ANALYSIS OF PRINTED MATTER FOR EACH STATE/TERRITORY SENDING MATERIALS

REGION AND STATE	CONTENT CATEGORY			
	Collision	Loading-Related	All Others	Total
Western				
Idaho	521	784	703	2,008
California	4,699	1,535	6,710	12,944
Nevada	1,003		1,855	2,858
Oregon	5,036	3,573	7,686	16,295
Utah	2,283	986	4,877	8,146
Totals	13,542	6,878	21,831	42,251
Southeastern				
Alabama	1,097	622	1,754	3,473
Florida	3,101	1,052	2,846	6,999
Kentucky	2,064	168	1,396	3,628
Mississippi	3,781	1,531	5,010	10,322
South Carolina	3,624	720	5,079	9,423
Tennessee	3,374	1,437	5,471	10,282
Texas	851	743	699	2,293
Virginia	1,843	637	5,309	7,789
Totals	19,735	6,910	27,564	54,209
Northeastern				
Connecticut	3,713	1,402	6,060	11,175
Delaware	2,097	1,075	5,771	8,943
Maryland	3,317	872	4,276	8,465
New York	2,325	638	1,920	4,883
Totals	11,452	3,987	18,027	33,466
North Central				
Illinois	4,271	655	4,856	9,782
Michigan	2,145	1,044	4,332	7,521
Minnesota	3,022	2,483	3,629	9,134
Missouri	168	120	448	736
North Dakota	170	30	490	690
Ohio	414		270	684
South Dakota	414		117	531
Wisconsin	936	61	501	1,498
Totals	11,540	4,393	14,643	30,576
Territories				
Virgin Islands	651	308	1,197	2,156



APPENDIX D-1. SCATTERGRAM FOR COMPARISON OF STATE COLLISION FATALITY RATES AND WORD COUNTS OF CONTENT IN STATE BOATING MATERIALS ADDRESSING COLLISION TOPICS

APPENDIX D-2. SCATTERGRAM FOR COMPARISON OF STATE LOADING RELATED FATALITY RATES AND WORD COUNTS OF CONTENT IN STATE BOATING MATERIALS ADDRESSING LOADING RELATED TOPICS



(r = 0.5627;
t = 3.2642;
t(22) = + 2.064, p < 0.05)

APPENDIX E. REGISTERED BOATS AND NORMALIZED FATALITY RATES FOR STATES RETURNING EDUCATIONAL MATERIALS

GEOGRAPHIC REGION	NO. BOATS	NO. REPORTED LOADING RELATED FATALITIES	NO. REPORTED COLLISION FATALITIES	RELATIVE FATALITY RATE LOADING RELATED $\times 10^3$*	RELATIVE FATALITY RATE COLLISION $\times 10^4$*
West					
California	513,382	94	16	0.18	0.31
Idaho	45,082	7	1	0.16	0.22
Nevada	22,756	4	0	0.18	0.00
Oregon	111,043	28	3	0.25	0.27
Utah	37,345	11	1	0.29	0.27
Southeast					
Alabama	160,386	26	11	0.16	0.68
Florida	382,956	49	10	0.13	0.26
Kentucky	96,597	30	6	0.31	0.62
Mississippi	82,493	18	4	0.22	0.48
South Carolina	151,534	41	7	0.27	0.46
Tennessee	204,499	26	3	0.13	0.15
Texas	482,844	49	6	0.10	0.12
Virginia	131,832	31	3	0.24	0.23
Northeast					
Connecticut	68,627	19	1	0.28	0.15
Delaware	24,557	6	0	0.24	0.00
Maryland	121,752	14	1	0.15	0.08
New York	347,211	62	7	0.18	0.20
North Central					
Illinois	228,486	32	8	0.14	0.35
Michigan	591,424	53	8	0.09	0.14
Minnesota	453,333	32	3	0.07	0.07
Missouri	173,422	7	5	0.04	0.29
North Dakota	18,377	0	0	0.00	0.00
Ohio	263,109	23	5	0.09	0.19
South Dakota	26,012	0	1	0.00	0.38
Wisconsin	354,006	26	8	0.07	0.23
Territories					
Virgin Islands	1,148	2	0	1.74	0.00

* The const[illegible] was multiplied times the relative fatality rate to eliminate unnecessary decimal places.

APPENDIX F. MAILING LIST FOR RECREATIONAL EDUCATIONAL MATERIALS

STATES

Department of Conservation
State Capitol
Montgomery, AL 36104

Alaska Travel Division
Box 2391
Juneau, AK 99801

Arizona Development Board
1500 W. Jefferson Street
Phoenix, AZ 85007

Publicity and Parks Commission
State Capitol
Little Rock, AR 72201

Division of Beaches and Parks
P. O. Box 2390
Sacramento, CA 95811

Department of Public Relations
State Capitol
Denver, CO 80203

Parks and Forest Commission
State of Connecticut
Hartford, CT 06115

State Park Commission
3300 Faulkland Road
Wilmington, DE 19808

*National Capital Region
National Park Service
1100 Ohio Drive SW
Washington, DC 20242

Florida Park Service
101 W. Gaines Street
Tallahassee, FL 32301

Department of State Parks
7 Hunter Street SW
Atlanta, GA 30334

*Division of State Parks
State of Hawaii
P. O. Box 621
Honolulu, HI 96809

*Dept. of Planning and Economic Development
Kamamalu Building
250 S. King Street
Honolulu, HI 96813

Dept. of Commerce & Development
State House
Boise, ID 83701

Illinois Division of Parks & Memorials
100 State Office Building
Springfield, IL 62706

Division of State Parks
616 State Office Building
Indianapolis, IN 46209

*State Conservation Commission
East 7th and Court Avenue
Des Moines, IA 50309

State Park and Resources Authority
801 Harrison
Topeka, KS 66612

Travel Division
Dept. of Public Information
Capitol Annex Building
Frankfort, KY 40601

State Parks & Recreation Commission
Old State Capitol Building
Baton Rouge, LA 70821

State Park & Recreation Commission
State House Office Building
Augusta, ME 04330

Dept. of Forests and Parks
State Office Building
Annapolis, MD 21404

Michigan Tourist Council
Stevens T. Mason Building
Lansing, MI 48926

---

* Responding agencies.

*Department of Natural Resources
Law Enforcement Division
Stevens T. Mason Building
Lansing, MI 48909

*Division of State Parks
320 Centennial Office Building
St. Paul, MN 55101

State Park System
1102 Woolfolk Building
Jackson, MS 39201

State Park Board
1206 Jefferson Building
Jefferson City, MO 65102

*Montana Highway Commission
Helena, MT 59601

Nebraska Game, Forestation and Parks Commission
State Capitol
Lincoln, NE 68509

State Park System
Carson City, NV 89701

Division of Economic Development
State House Annex
Concord, NH 03301

Dept. of Conservation and Economic Development
P. O. Box 1889
Trenton, NJ 08625

State Tourist Division
302 Galisteo
Santa Fe, NM 87501

*Division of State Parks
State Campus Site
Albany, NY 12226

Travel Information Division
Dept. of Conservation & Development
Raleigh, NC 27602

North Dakota Travel Department
State Capitol
Bismarck, ND 58501

Division of Parks and Recreation
1500 Dublin Road
Columbus, OH 43212

Ohio State Dept. of Education
Driver & Traffic Safety Education
Columbus, OH 43215

Division of State Parks
Rm 533, State Capitol Building
Oklahoma City, OK 73105

State Highway Department
Salem, OR 97310

State Dept. of Forests & Waters
Harrisburg, PA 17120

Rhode Island Development Council
Roger Williams Building
Hayes Street
Providence, RI 02908

*South Carolina Development Board
Columbia, SC 29202

*Dept. of Game, Fish and Parks
Pierre, SD 57501

Division of State Parks
235 Cordell Hull Building
Nashville, TN 37219

Texas State Parks Board
Drawer E, Capitol Station
Austin, TX 78701

Tourist and Publicity Council
State Capitol
Salt Lake City, UT 84114

STATES (continued)

* Dept. of Forests and Parks
Montpelier, VT 05601

Division of Public Relations
and Advertising
811 State Office Building
Richmond, VA 23219

Parks and Recreation Commision
522 S. Franklin
Olympia, WA 98502

* Division of Parks and Recreation
State Office Building
Charleston, WV 25305

* Vacation and Travel Service
Box 450
Madison, WI 53701

Hunter Safety
Department of Natural Resources
Box 450
Madison, WI 53701

Snowmobile Safety
Department of Natural Resources
Box 450
Madison, WI 53701

* Travel Commission
2320 Capitol Avenue
Cheyenne, WY 82001

256

FEDERAL AGENCIES

U.S. Corps of Engineers
Dept. of the Army
Washington, DC 20315

Chief Safety Officer
National Park Service
Department of the Interior
Washington, DC

Bureau of Indian Affairs
U.S. Dept. of the Interior
Washington, DC 20240

Forest Service
U.S. Dept. of Agriculture
Washington, DC 20240

Fish and Wildlife Service
U.S. Dept. of the Interior
Washington, DC 20240

United States Air Force
Aerospace Audio Visual Service
Norton Air Force Base, CA 92409

National Commission on Safety Education
National Education Association
1201 Sixteenth Street NW
Washington, DC 20036

U.S. Dept. of the Interior
Bureau of Outdoor Recreation
Washington, DC 20240

PRIVATE

Office of the Coordinator,
Traffic Safety Education
Central Michigan University
Mount Pleasant, MI 48858

Universal Underwriters Ins. Co.
5115 Oak Street
Kansas City, MO 64112

Arnold Mende
Contemporary Education, Inc.
26 Patridge Road
Lexington, MA 02173

Mr. Floyd Clymer
Floyd Clymer Publications
222 North Virgil Avenue
Los Angeles, CA 90004

Harley-Davidson Motor Co.
P. O. Box 653
Milwaukee, WI 53201
Attention: Safety

American Honda Motor Co., Inc.
100 W. Alondra Boulevard
Gardena, CA 90247

* Patricia Z. Barry
Patricia F. Waller
Donald W. Reinfurt
University of North Carolina
Highway Safety Research Center
Chapel Hill, NC 27514

Messrs. M.L. Reiss, W. G. Berger,
and G. R. Vallette
Bio Technology, Inc.
Falls Church, VA 22000

The Traffic Institute
405 Church Street
Northwestern University
Evanston, IL 60201

Public Safety Department
Automobile Club of Southern Calif.
2601 South Figueroa
Los Angeles, CA 90007

* Kawasaki Motors Company
Safety Education Department
1062 McGaw Avenue
Santa Ana, CA 92705

Messrs. Jim Jinju and Dona Gately
Yamaha International Corporation
7733 Telegraph Road
Montebello, CA 90640

* Motorcycle Safety Foundation
6755 Elkridge Landing Road
Linthicum, MD 21090

Dr. Charles Hartman
Motorcycle Safety Foundation
Milner-Fenwick, Inc.
3800 Liberty Hieghts Avenue
Baltimore, MD 21215

Robert Rasor
Legislative Analyst
The American Motorcycle Association
Westerville, OH 43081

T. M. Fraser
Department of Systems Design
University of Waterloo
Ontario, CANADA

* Motorcycle Industry Council, Inc.
4100 Birch Street, Suite 101
Newport Beach, CA 92660

Ottawa Safety Council
226 Sparks Street
Ottawa 4, Ontario
CANADA

* Royal Automobile Club
83-85 Pall Mall
London S.W. 1
ENGLAND

United States Suzuki Motor Corporation
P. O. Box 1293
Studio City, CA 91604

PRIVATE (continued)

Motorcycle Industry Council
Safety and Education Foundation, Inc.
1001 Connecticut Ave., Suite 701
Washington, DC 20036

* American Driver and Traffic Safety
Education Association
1201 Sixteenth Street NW
Washington, DC 20036

John V. Hanson, President
Winnebago Industries, Inc.
Forest City, IA 50436

Donald J. Ryan, President
Family Camping Federation of America
Martinsville, IN

Jack B. Hobbs
Tort Claims Officer
National Capital Parks
National Park Service
Department of the Interior
Washington, DC

California Assoc. of 4-Wheel Drive Clubs
160 North Palm Avenue
Hemet, CA 92343

National All-Terrain Vehicle Association
342 Broad Street
New Bethelehem, PA 16242

* Kawasaki Midwest
5020 36th Street SE
Grand Rapids, MI 49508

* American Motorcycle Association
P. O. Box 141
Westerville, OH 43081

* Ski-Doo Division
Bombardier Limited
8600 Decarie Boulevard
Montreal, Quebec
CANADA

* Dean Manheimer
Institute for Research in Social
Behavior
The Claremont Office Park
Berkeley, CA 94705

Bicycle Mfrs. Assoc. of America, Inc.
1101 15th Street SW
Washington, DC 20005

American Insurance Association
Publications Division
85 John Street
New York, NY 10038

Outdoor Recreation Institute
5003 Wapakoneta
Washington, DC 20016

World Leisure and Recreation Assn.
345 E. 46th Street
New York, NY 10017

Michigan Snowmobiles
207 Main Street
East Jordan, MI 49727

Sno Goer
1999 Shepard Road
St. Paul, MN 55116

Keith Barenklau, Director
Safety Training and Fleet Services
Employers Insurance of Wausau
Wausau, WI

* International Snowmobile Industry Assn.
Suite 850 South
1800 M. Street NW
Washington, DC 20036

John Rand
Dartmouth College
Hanover, NH

Davis W. Clark, M.D.
The University of Rochester
School of Medicine and Dentistry
260 Crittenden Boulevard
Rochester, NY 14620

* Dr. Harold Mendelsohn
University of Denver
Denver, CO

American Camping Association
Bradford Woods
Martinsville, IN 46151

PRIVATE (continued)

Consumer Product Safety Commission
Bureau of Information
Washington, DC 20207

* National Fire Protection Association
470 Atlantic Avenue
Boston, MA 02210

American Alliance for Health, Physical Education, and Recreation
1201 16th Street NW
Washington, DC 20036

National Recreation and Park Assn.
1601 N. Kent Street
Arlington, VA 22209

American National Red Cross
17th & E Streets NW
Washington, DC 20006

* Council for National Cooperation in Aquatics
220 Ashton Road
Ashton, MD 20702

National Surf Life Saving Assn.
P. O. Box 366
Huntington Beach, CA 92648

National Rifle Association
1600 Rhode Island Ave. NW
Washington, DC 20036

* G. A. Cubitt MBE
Camping Club of Great Britain and Ireland
11 Lower Grosvenor Place
London SW1W OEY

* Mr. D. Gray
British Mountaineering Council
Crawford House
Precinct Centre
Booth Street East
Manchester M13 9RZ

British Hang Gliding Association
'monksilver'
Taunton
Somerset

G. E. Dimmer
British Surfing Association
18 Bournemouth Road
Parkstone
Poole
Dorset

R. L. Vallintine
British Sub Aqua Club
70 Brompton Road
London
SW3

* British Orienteering Federation
Lea Green
Matlock
Derbyshire
DE5 51T

CANADIAN PROVINCES

Government Travel Bureau
331 Highways Building
Edmonton, Alta

Government Travel Bureau
Parliament Building
Victoria, BC

Bureau of Travel and Publicity
Legislative Building
Winnipeg, Manitoba

Travel Bureau
796 Queen Street
Fredericton, N.B.

Tourist Development Office
St. John's, Mfld

Nova Scotia Travel Bureau
Halifax, N.S.

Department of Tourism
67 College Street
Toronto, Ontario

Travel Bureau
P. O. Box 1087
Charlottetown, P.E.I.

Department of Tourism
12 Ste. Anne Street
Quebec, P.Q.

Tourist Development Branch
Power Building
Regina, Sask.

Department of Travel and Publicity
Whitehorse, Y.T.

UNREQUESTED MATERIALS RECEIVED

U. S. Coast Guard
Washington, DC 20590

Newspaper Advertising Bureau, Inc.
485 Lexington Avenue
New York, NY 10017

Royal Society for the Prevention of Accidents
Head Office
Cannon House
The Priory Queensway
Birmingham B4 6BS

Missouri Dept. of Natural Resources
P. O. Box 176
Jefferson City, MO 65101

Arizona Office of Tourism
1700 West Washington
Phoenix, AZ 85007

Universal Underwriters Insurance Company
51 Fifteen Oak
Kansas City, MO 64112

Arizona Office of Economic Planning and Development
1700 West Washington
Executive Tower
Room 505
Phoenix, AZ 85007

North Carolina
Travel Development Section
Dept. of Natural & Economic Resources
Raleigh, NC 27611

U. S. Dept. of the Interior
Bureau of Outdoor Recreation
Washington, DC

Hacox Photoramic, Inc.
1531 Early Street
P. O. Box 12190
Norfork, VA 23502

U. S. Consumer Product Safety Commission
Washington, DC 20207

Public Safety Department
National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

Wildwater Expeditions Unlimited, Inc.
P. O. Box 55
Thurmond, WV 25936

U. S. Department of Labor
Employment Standards Administration
Washington, DC 20207

Channing L. Bete Co., Inc.
Greenfield, MA 01301
45 Federal Street

U. S. Dept. of the Interior
Office of the Assistant Secretary
Management and Budget

Smokeless Tobacco Safety Bureau
P. O. Box 70
Peekskill, NY 10566

Dept. of the Army
Office of the Chief of Engineers
Washington, DC 20314

Ohio Dept. of Natural Resources
Division of Parks & Recreation
Fountain Square
Columbus, OH 43224

26th Annual Conference
The National Water Safety Congress
Atlanta, GA

John LeGarde
Board of Health
Raleigh, NC

APPENDIX G. COPY OF FORM LETTER REQUESTING EDUCATIONAL INFORMATION FROM OTHER RECREATIONAL AREAS

WYLE LABORATORIES

Gentlemen:

The Marine Technology Division of Wyle Laboratories is currently under contract to the United States Coast Guard to research the general area of recreational boater education. The intent of the project is to reduce the number of recreational boating accidents and fatalities by developing alternative approaches for an overall instructional program.

One aspect of this project is an attempt to establish contact with safety professionals and programs in recreational activities other than boating. These activities might include, but are not limited to, camping, snow mobiling, surfing, scuba diving, hiking and climbing, sky diving, auto racing, etc. It is hoped that a review of available educational materials and data concerning similarities in participants and accidents with boaters will enable the specification of methods that may be beneficial to boating education. As part of this effort, I am compiling information from various recreational organizations and collecting data concerning all sources, persons, and organizations which would be likely to offer information.

As described above, the project is very general in nature. My main purpose in writing is to establish contact and gain any information that I can. Specifically, we need to find:

1) Sources of demographic data concerning the participants in various recreational activities

2) Sources of accident data from recreational activities other than boating

3) Sources of educational methods which have been or are used in safety programs for other recreational activities (from bill boards and pamphlets to mass media campaigns). What methods of contact have been used? With what success? etc.

4) Sources for methods of evaluating the effectiveness of education campaigns.

EASTERN OPERATIONS
7800 Governors Drive West
Huntsville, Alabama 35807
837-4411 Area Code 205
TWX 810-725-2225

If you have any questions concerning the nature of the information needs or the intent of our project, please call me at 205/837-4411, or write to the address on the previous page. Please address all correspondence to my attention.

Sincerely,

WYLE LABORATORIES
Eastern Operations

C. Christian Stiehl

C. Christian Stiehl
Experimental Psychologist/Industrial Engineer
Marine Technology

CCS/gsp

APPENDIX H. INSTRUCTIONS TO WYLE "JUDGES" FOR SELECTION OF BEST BOATING, MOTORCYCLING, AND SNOWMOBILING PRINTED MATERIALS

TASK: Evaluate Recreational Educational Materials

TIME ESTIMATED: One Hour

INSTRUCTIONS: You are being asked to evaluate certain recreational educational materials. Most of these concern boating. The materials are organized in several groups to include boating educational materials used by:

- State Agencies (Drawer One)*
- Federal Agencies (Drawer Two)
- Private Organizations (Drawer Two)
- Boat Manufacturers (Drawer Three)
- Insurance Companies that underwrite boats (Drawer Three)

The other recreational materials to be evaluated are grouped according to kind of recreational activity addressed. These groups include:

- Snowmobiling (Drawer Four)
- Motorcycling (Drawer Four)

We would like you to determine the best materials from each of the groups. Your choices will then be used in another phase of the general education project.

Here is how to make your evaluation. Work through one group of materials at a time. They are grouped on different shelves in the educational materials file. Leaf through the first group of materials (state boating education) and try to get a feel for the relative instructional quality of each educational pamphlet. Then choose from that group the two (2) best overall materials. Then go on to the second group of materials in the file. Your selection should reflect the instructional quality of the material and not the popularity or urgency of the situations discussed, or your particular interest in one situation over another.

For this project, quality of the materials should reflect three criteria:

- Does the pamphlet deal realistically and appropriately with the recreational situations?

- Does the pamphlet seem to address the persons most likely to utilize or need the information? Is it written above or below the sophistication of the target population?

---

*Refers to four full size file drawers in which materials were kept.

- Does the pamphlet treat the situation thoroughly enough to be valuable, but not overwhelming in detail?

To indicate your judgment as to the best two instructional materials in each group, paper-clip the appropriate slip of paper (first choice and second choice) to the respective materials. Also jot down the primary reason for your decisions for first and second choice. Then place the materials chosen in the brown envelope provided. Use one envelope for each group.

Let me know when you have finished. Please do not discuss your selections until we have finished polling everyone involved. Thank you for your help. We know this task has been difficult, at best, and that some of the evaluations required considerable effort on your part.

APPENDIX I. INSTRUCTIONS TO CONSULTANT PANEL FOR JOURNALISTIC TECHNICAL EVALUATION OF BOATING, MOTORCYCLING, AND SNOWMOBILING PRINTED MATERIALS

Instructions

You are being asked to evaluate certain educational materials (brochures, booklets, etc.) directed to recreational sports. At this time we are primarily interested in the journalistic technical attributes of the material. The purpose of the evaluations is to provide the U. S. Coast Guard with guidelines for determining the best ways to prepare printed mass media boating safety materials. The materials to be evaluated in this task are directed to three recreational sports but most of them concern pleasure boating. They have undergone a previous round of evaluations by boating experts and have been judged as higher quality educational materials. The criteria for their evaluation by the boating experts were:

- Did the pamphlet deal realistically and appropriately with the recreational situation?
- Did the pamphlet seem to address the persons most likely to utilize or need the information - was it written above or below the sophistication of the target population?
- Did the pamphlet treat the situation thoroughly enough to be valuable but not overwhelming in detail?

These criteria were used collectively to indicate the overall quality for each pamphlet. The evaluations resulted in each judge's "first" and "second" preference for the materials.

The criteria for evaluation of the journalistic technical attributes remains somewhat open at this point. We are attempting to determine how boating materials in general can be improved in light of how two other recreational activities (motorcycling and snowmobiling) approach their educational materials. The criteria we are now considering are:

- quality of printing, selection of type font, artistic and practical use of color, appropriateness of artwork
- layout of the brochures including location of printing and the associated photographs and artwork
- quality of paper used, and
- appropriateness of verbal style.

These forementioned criteria are open to modification. If you feel that other or additional criteria should be used for this evaluation, please take the initiative. We are interested in a professional evaluation here and the more good technical information we can get, the more valuable the resulting recommendations should be to the U. S. Coast Guard.

It would seem best if the evaluation could be done in an assembled group of experts in journalism rather than done individually. The following procedure is suggested:

Step 1 Examine all 28 pamphlets in any way you choose. Try to get a feel for the kind of pamphlets included and the approaches taken for the educational function.

Step 2 Then pull out the seven pamphlets for motorcycling and snowmobiling. Please evaluate these materials first. Use the four technical criteria or additional criteria suggested within your group. Write out a short group consensus statement for your reactions to each brochure.

Step 3 Return to the 21 boating pamphlets and evaluate these materials using the same criteria you used for the motorcycling and snowmobiling literature. Again write out a short group consensus statement for your reactions to each of the boating brochures.

Step 4 Write out a longer evaluation for the combined motorcycle/ snowmobile group of materials and for the combined boating materials. That is, how do the boating materials compare with the group of materials from the motorcycle/ snowmobile group.

The purpose of this procedure is to have a collective judgment of the materials that represents a consensus of your opinions about the materials.

Please return the evaluated materials UPS and mail the results of the evaluation to me at Wyle Laboratories, P. O. Box 1008, Huntsville, AL 35807.

APPENDIX J. CLASSIFICATIONS AND COMMENTS GIVEN BY JUDGES FOR SELECTION OF BOATING EDUCATIONAL MATERIALS

CLASSIFICATION OF JUDGES' COMMENTS	FREQUENCY THIS KIND OF COMMENT OCCURRED AND RANK	
	FREQUENCY	RANK
EXCELLENT TO GOOD COVERAGE OF MATERIAL (BEGINNER OR ADVANCED)	14	Second
GOOD TO ADEQUATE BASIC COVERAGE OF MATERIAL - BEGINNER	15	First
GOOD TO ADEQUATE BASIC COVERAGE OF MATERIAL - ADVANCED	2	Fifth
GOOD TO ADEQUATE BASIC COVERAGE OF MATERIAL - PASSENGER	1	Sixth
SPECIFIC COVERAGE OF SPECIALIZED AREA OF BOATING	3	Fourth
PHYSICAL APPEARANCE OF PAMPHLETS	4	Third
PROCESS OF ELIMINATION - OTHER MATERIALS WERE INFERIOR	1	Seventh
TOTAL	40	

LIST OF ACTUAL COMMENTS

EXCELLENT TO GOOD COVERAGE OF MATERIAL (BEGINNER OR ADVANCED)

- Very well done and appealing as well as informative.
- Well laid out - more complete than most others.
- Appeal to most boaters - covers main safety points.
- Excellent coverage - well presented good quality - self study and examination.
- Beautifully well done and complete.
- Very usable pamphlet - tells me about launch ramps and facilities all over the state - I also like the Oregon one but it is bigger and harder to store.
- Seems to be complete but very concise - to the point. This type of material skimmed once then only used when needed - usually when I'm in trouble.
- Gets the point across quickly.
- Short - good illustrations - practical hints.
- Looks like a very complete study. Good for a variety of interests.
- Concise - good artwork, professional, practical.
- Professional, well done, concise, gets message over quickly.
- Contains all the information necessary to familiarize a boater beginner with the rules, regulations and operating procedures for pleasure boating. May be used as a reference manual by experienced boaters. Contains a test on each section which would promote competitive examinations between boaters, enhancing boater education. Note: Multiple choice questions would result in more participation in the tests.
- Many multiple choice answers on tests - very good. Contains adequate information to educate novice or beginner boater on pleasure boating. Can be used by experienced boater as reference.

GOOD TO ADEQUATE BASIC COVERAGE OF MATERIAL - BEGINNER

- Although outdated, does a good job of covering basics. Good quality - content needs updating.
- Covers basic detail for new boat owner.
- Covers more basic information - reaches boat owner.
- Good for general audiences not just boat owner.
- Well organized and presented for beginner - starts with basics.
- Practical problems addressed.Same as first choice except material is not presented in an easy to study manner. Some lettering is too small and some diagrams are poor.
- Very good for beginner. Contains most basic rules, regulations, and procedures. Would not be suitable for experienced boater.
- Good basic manual and could be used as reference manual. Some lettering too small and diagrams are poor - too difficult to interpret.
- Good for quick refresher of regulations and could be used as reference manual on regulations.
- Contains basic operating instructions and safety rules.
- Contains basic operating instructions and safety rules but letter page color contrast could be better.
- Adequate information for beginner. Brief enough that most beginners would read.
- Contains most of the do's and don't's but not as informative as first choice.
- Multiple choice and true/false questions - very good. Easy to understand diagrams. Covers all important subject necessary for beginner.

GOOD TO ADEQUATE BASIC COVERAGE OF MATERIAL - ADVANCED

- Same as first choice, except too much material for beginner. More suitable for experienced boater for reference manual.
- Same as first choice, except oriented more toward competition riders.

GOOD TO ADEQUATE BASIC COVERAGE OF MATERIAL - PASSENGER

- Good material for children or adults that are usually passengers. Not enough information to familiarize beginner operator with all aspects of safe boating.

SPECIFIC COVERAGE OF SPECIALIZED AREA OF BOATING

- Well done and good quality paper. Does an excellent job on a special subject.
- More details on equipment and care plus hypothermia.
- Practical problems addressed, i.e., boat repair.

PHYSICAL APPEARANCE

- Feels and looks valuable - would want to keep it in boat.
- First class - waterproof paper - radio log - practical size.
- Cute.
- Good illustrations. Concise.

PROCESS OF ELIMINATION

- Other material sketchy.

APPENDIX K. CONTRIBUTING RESOURCE PERSONS AND PUBLICATIONS FOR MASS MEDIA EDUCATIONAL ALTERNATIVES

Directories, Reference Materials, and Resource Persons

ELECTRONIC MEDIA:

- Broadcasting in America. Sydney Head.

  The basic text in media; its strong points consist of the most complete discussion of media research, finances and responsibility.

- Broadcasting Yearbook.

  Contains complete list for all broadcast facilities in the U. S. and territories, including staff members and other useful station data, and a complete list of specialized services and companies providing them.

- Sales Management Survey of Buying Power.

  A yearbook volume published by Sales Management magazine; it contains much important retail information, per capita spending, growth markets, etc., for the U. S.; very useful for marketing.

- Advertising Campaigns: Formulation and Strategy. Leon Quera.

  A recent book concerning techniques in campaign development; it contains a good section on support use of media.

- Standard Rate and Data Service. (Spot television and radio volumes)

  Contains the rates for time buys on television and radio stations in the U. S.; includes station data and coverage (contour) maps for the stations, and is updated monthly.

- Man and Communication. James Anderson and Timothy Meyer.

  A recent book dealing with communication and information processes; it not only synthesizes traditional material but presents new thinking on the information gathering process.

- A Human Information Processing Approach to the Design of Citizen Group Messages. James A. Murray.

  A unique approach to use of mass media; he synthesizes information processing theory and develops guidelines for message construction consistent with the theory.

- Christiaan DeBrauw, Research Supervisor; Foote, Cone and Belding, Chicago, Illinois.

  Responsible for a number of research projects at this ad agency, he has spoken with Wyle personnel in regard to this project and has offered many suggestions. He might be a source of further information if it does not conflict with his normal duties.

- Hal Ross, Mates and Ross, a research firm, Princeton, New Jersey.

  Ross is a partner in a very reputable media research company. He was quite helpful in discussing their pre-testing procedures for commercials in various parts of the country. Their firm is the type considered desirable for marketing advice as well as for concepting and pre-testing message materials.

- A. C. Nielson Company, a research firm, Chicago, Illinois.

  A research firm doing a large amount of marketing research (not just ratings), they compile and sell specialized mailing lists, etc., and might provide a number of useful services in the early stages of such a boater educational mass media campaign.

PRINT MEDIA (GENERAL):

- Ayer's Directory of Newspapers and Periodicals
  N. W. Ayer and Son
  1345 Avenue of the Americas
  New York, NY 10019
  (Annual)

- Standard Periodical Directory
  Oxbridge Communications
  1345 Avenue of the Americas
  New York, NY 10019

- Working Press of the Nation
  Volume II (Magazines) and Volume IV (Feature Writers and Syndicates)
  National Research Bureau
  221 North LaSalle
  Chicago, IL 60601

PRINT MEDIA (SPECIFIC SERVICES):

Circulation

- Audit Bureau of Circulation
  123 N. Wacker Drive
  Chicago, IL 60607

- Magazine Publishers Association
  575 Lexington Avenue
  New York, NY 10022

- Standard Rate and Data Service
  5201 Old Orchard Road
  Skokie, IL 60076

Audience Size

- Axiom Market Research Bureau
  Target Group Index
  420 Lexington Avenue
  New York, NY 10017

- W. R. Simmons and Associates Research
  1180 Avenue of the Americas
  New York, NY 10036

Editorial Product/Content

- The Lloyd H. Hall Company
  261 Madison Avenue
  New York, NY 10016

- Readex, Inc.
  140 Quail Street
  St. Paul, MN 55115

Effectiveness

- Audience Studies
  711 Fifth Avenue
  New York, NY 10022

- Gallup and Robinson
  Research Park
  Princeton, NJ 08540

- Daniel Starch and Staff
  Mamaroneck, NY 10543

APPENDIX L. INSTRUCTIONS AND ATTITUDE/MEDIA PREFERENCE QUESTIONNAIRE

INSTRUCTIONS FOR ADMINISTERING THE ATTITUDE AND MEDIA PREFERENCE STUDY AT THE MUSCLE SHOALS AND MEMPHIS BOAT SHOWS

If possible, give this attitude/media questionnaire out to every other person consenting to participate in the Wyle study. That is, alternate this questionnaire with the personality inventory prepared by T. Doll. Also, distribute the questionnaire at various times for the duration of the boat shows. This will permit us to make some inferences about the representativeness of respondents for the general attendence of the boat shows.

In talking with prospective respondents, please identify the study as a fact-finding study about boaters in general. Actually, this is the kind of study that often precedes the planning of an advertising campaign. If possible, do not tell respondents that this study is for a safe boating educational effort -- it is likely that this knowledge will bias the response to the measurement items.

In the event that you are asked who is doing the study, please answer, "Wyle Laboratories for research purposes." If a respondent persists, say, "The U.S. Coast Guard is funding the project." If a prospective respondent requires more information before he will consent to participate, terminate the request.

Before each respondent actually begins the questionnaire, be certain to review the following points:

- the reference to "high performance boats" in the questionnaire means racing boats or drag boats, not ski boats
- emphasize the qualification word "primarily" in the first three attitude items
- remind respondents to mark only one answer for each of the media preference items.

275

BOATING INFORMATION FORM — WYLE LABORATORIES

The purpose of this study is to learn more about the opinions held by the general population of recreational boaters. In order to do this, we need to know about boaters, their boating activities, and some of their personal attitudes toward various subjects. It should take only about 10 minutes of your time.

Please answer the questions in order and read the instructions for each section before beginning that particular section. Do not put your name on the form. That way your answers will be completely anonymous. The results of the study are to be tabulated for the entire group of respondents. When you finish, deposit the questionnaire directly in the box marked "Completed Questionnaires."

Thank you for your time and effort.

BOATING INFORMATION FORM — WYLE LABORATORIES

INSTRUCTIONS: The questionnaire consists of three parts. Part I concerns information about you as a boater. Parts II and III concern your attitudes and opinions on several topics.

PART I: Please answer every question below as accurately as possible. Your answers will not be identified by name.

GENERAL INFORMATION:

Age: ________ yrs   Sex (Circle one): M F

Marital Status (Circle one): Single Married Divorced Widowed Separated

EDUCATION:

Check the highest educational level which you have completed:

Eight years of school or less	________
More than eight years of school	________
Graduated from high school	________
Completed business or trade school course	________
Completed at least one year of college	________
Received Associate's (two year) college degree	________
Received Bachelor's (four year) college degree	________
Received Master's degree	________
Have completed study beyond Master's level	________

OCCUPATION:

What is your present or most recent occupation? ________________________________

How many jobs have you held in the last five years? (Count part-time work only if you did not hold a full-time job during the same period. Promotions or changes of duties within the same organization count as only one job.) ________

BOATS YOU USE:

Describe the boats in which you have done most of your boating:	Boat Most Used (Not necessarily the boat you use now)	Second Most Used Boat
Overall Length (check one):		
Under 14 ft long	________	________
At least 14 ft but under 16 ft	________	________
At least 16 ft but under 18 ft	________	________
At least 18 ft but under 20 ft	________	________
At least 20 ft but under 22 ft	________	________
At least 22 ft but under 26 ft	________	________
26 ft or over	________	________
Type of Boat (check one):		
Johnboat, rowboat, dinghy, inflatable, etc.	________	________
Open runabout, ski boat, bowrider, bass boat, etc.	________	________
High performance boat (racer, drag boat)	________	________
Cabin cruiser, large cruiser, houseboat, motor-sailer, etc. ..	________	________
Sailboat	________	________
Canoe, kayak, etc., and others	________	________

BOATING ACTIVITY:

How often on the average did you go out in a boat during the last two boating seasons? (Check one in each column)

	Last Season (1976)	The Season Before Last (1975)
Did not go out	________	________
Less than once a month	________	________
One-two times a month	________	________
Just under once a week	________	________
About once a week, or slightly more	________	________
About twice a week	________	________
Three or more times a week	________	________

Of all the boat outings you have been on, how much of the time have you been the operator of the boat? (Check one)

Infrequently (less than 20% of the time) . ________
Occasionally (20-40% of the time) .... ________
About one-half of the time 40-60%) .... ________
Most of the time (60-80%) .... ________
Almost all the time (Over 80%) .... ________

BOATING MISHAPS:

Have you even been involved in any of the following kinds of boating mishaps? (Check as many as apply)

Boat hit a floating or submerged object hard enough to cause at least minor damage to the hull .... ________
Boat became grounded .... ________
A passenger fell overboard .... ________
Boat collided with or was struck by another boat or fixed object hard enough to cause at least minor damage .... ________
A person was struck by the boat or the propeller .... ________
Fire or explosion aboard the boat .... ________
Boat became swamped or flooded with water .... ________
Boat capsized (or flipped over) .... ________

Were you operating the boat at the time when any of the above mishaps occurred? (Circle one) Yes No

Did any of the mishaps above involve (Check as many as apply):

Over $100 total property damage .... ________
Injuries to anyone requiring hospitalization or a physicians attention .... ________
Loss of a person's life .... ________

PART II: Listed below are several statements about boating concerning your personal opinions and attitudes. Please read each of the statements, then place a check mark in the space next to the answer that best describes how you feel about the statement.

1 Safe boating is primarily the responsibility of manufactures of boats and boating equipment.

__________ Strongly Agree
__________ Somewhat Agree
__________ Somewhat Disagree
__________ Strongly Disagree

2. Safe boating is primarily the responsibility of all persons who operate boats.

__________ Strongly Agree
__________ Somewhat Agree
__________ Somewhat Disagree
__________ Strongly Disagree

3. Safe boating is primarily the responsibility of the Coast Guard and other government enforcement agencies.

__________ Strongly Agree
__________ Somewhat Agree
__________ Somewhat Disagree
__________ Strongly Disagree

4. Boating mishaps are usually the result of bad luck rather than poor operator judgment or inadequate operator skill.

__________ Strongly Agree
__________ Somewhat Agree
__________ Somewhat Disagree
__________ Strongly Disagree

5. The person who is the more competent boater will most likely have taken a formal boating course in order to learn about boating.

__________ Strongly Agree
__________ Somewhat Agree
__________ Somewhat Disagree
__________ Strongly Disagree

6. The person who is the more competent boater will most likely have learned about boating from experience.

__________ Strongly Agree
__________ Somewhat Agree
__________ Somewhat Disagree
__________ Strongly Disagree

7. The person who is the most competent boater will have a "natural ability" for boat operation and seamanship (regardless of boating courses or boating experience).

__________ Strongly Agree
__________ Somewhat Agree
__________ Somewhat Disagree
__________ Strongly Disagree

PART III: Listed below are several questions about various sources of news and information used by all people. Please place a check mark in the space next to your answer and check only one answer for each question.

1. We'd like to know where you usually get most of your information about what is going on in the world.

__________ From newspapers
__________ From television
__________ From radio
__________ From magazines
__________ From talking to people (friends)

2. If you got conflicting or different information, which version would you be most inclined to believe?

__________ Radio

__________ Magazines

__________ Television

__________ Newspapers

__________ From talking with people (friends)

3. Which of the versions would you be least inclined to believe?

__________ Magazines

__________ Radio

__________ Talking with people (friends)

__________ Television

__________ Newspapers

4. Suppose that you could continue to have only one of the following ways of getting information. Which one would you most want?

__________ Talking with people (friends)

__________ Radio

__________ Television

__________ Newspapers

__________ Magazines

5. Next, would you tell us where you get most of your information about boating/boating-safety?

__________ Radio and television

__________ "Informed" people such as marina operators, boating equipment dealers, friends with boating experience

__________ Boating magazines, boating columns in newspapers, books about boating

__________ Brochures and phamplets about boating

__________ Formal organizations such as Coast Guard Auxiliary, Power Squadron, yacht and boat clubs

__________ Other (please specify) ______________________________

6. If you get conflicting or different information concerning boating/boating-safety, which version would you be most likely to believe?

__________ Radio and television

__________ "Informed people such as marina operators, boating equipment dealers, friends with boating experience

__________ Boating magazines, boating columns in newspapers, books about boating

__________ Brochures and phamplets about boating

__________ Formal organizations such as Coast Guard Auxiliary, Power Squadron, yacht and boat clubs

__________ Other (please specify) ______________________________

7. Which of the versions would you be least likely to believe?

__________ Radio and television

__________ "Informed people such as marina operators, boating equipment dealers, friends with boating experience

__________ Boating magazines, boating columns in newspapers, books about boating

__________ Brochures and phamplets about boating

__________ Formal organizations such as Coast Guard Auxiliary, Power Squadron, yacht and boat clubs

__________ Other (please specify) ______________________________

8. Suppose that you could determine to have only one of the following ways of getting boating/boating-safety information. Which one would you most want?

__________ Radio and television

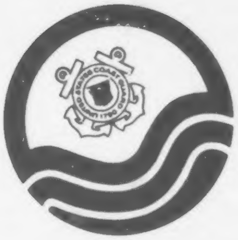
__________ "Informed" people such as marina operators, boating equipment dealers, friends with boating experience

__________ Boating magazines, boating columns in newspapers, books about boating

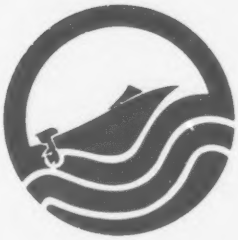
__________ Brochures and phamplets about boating

__________ Formal organizations such as Coast Guard Auxiliary, Power Squadron, yacht and boat clubs

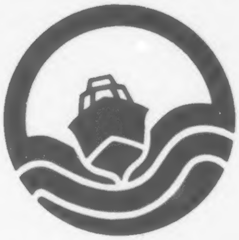
__________ Other (please specify) ______________________________



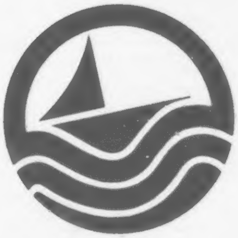
General endorsing logo for all the educational materials - used for official messages, and used in conjunction with other typical logos to authenticate content at end of materials.



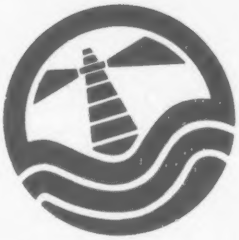
Identification logo for educational materials concerning smaller boats including johnboats, outboard runabouts, and inboard/outdrive runabouts.



Identification logo for educational materials concerning larger boats including cabin and offshore cruisers.



Identification logo for educational materials concerning sailboats and more sophisticated aspects of seamanship.



Identification logo for educational materials concerning navigation and piloting.

APPENDIX N - SCRIPT FOR VTR SUPPLEMENT TO THE EDUCATIONAL ALTERNATIVES FOR BOATING SAFETY PROGRAMS

Verbal Script for Video Tape Supplement Report

This report speaks to a growing concern for improving the quality of recreational boating. Much current attention has been focused upon ways in which boat operator skills and judgment can be improved.

This portion of the General Education Report deals primarily with the presentation of media production materials, materials which are the outcome of an analysis of two major types of recreational boating mishaps - collision and loading related accidents.

These materials have been prepared as illustrative items with the intent to demonstrate how an educational program might actually appear. It is recognized that any materials conceived for educational purposes do not require their use by an organization. The intention here is to provide available resources to any private, state, or national organization.

Our general approach in developing these educational materials can best be described as an integrated approach. That is to say, several component parts have been brought together to form an overall framework within which each of the educational materials will fit. The general term given this integrative method is "campaign approach," an approach which does not differ significantly from the traditional approach to public service campaigns normally developed by advertising agencies.

The first step in undertaking an educational program of this scope is to specify the campaign objectives, outlining what the program is to accomplish. The general objectives we have specified in the development of this educational program are:

> First, to provide the means for increasing public awareness and response to current and subsequent boating education messages, and second, to provide information for recreational boaters which is directed toward reducing boating accidents, injuries and fatalities.

Once the objectives for an educational program have been specified, the next step is creating an organizing theme. "Theme" refers to the focal point around which methods for implementing the objectives will be organized. The theme identified as the focus for this General Education Program is, "A boater is obligated to be knowledgeable and skilled in the operation of his boat." We assume that a boater who is knowledgeable and skilled, will be a more competent operator, less likely to be involved in an accident. Moreover, in the event that he is involved in an accident, he should then be more likely to survive, and facilitate the survival of others on board.

There are five advantages to taking a campaign approach in this education program. First, the campaign approach provides a means for developing and coordinating all present and future educational materials. Second, since no single message can possibly address all specified campaign objectives, the campaign approach allows the integration of a number of different messages and media into an effective, cohesive unit. Third, once an overall framework has been determined, a campaign approach increases the amount of information that can be communicated .... Fourth, when information is communicated over a period of time using the campaign approach, the amount of that information retained or internalized is substantially increased.

Finally, the campaign approach facilitates compliance with recommendations made over a period of time. By using organized and accepted strategies for a campaign, we increase the likelihood of gaining boater compliance, consequently reducing boating accidents, injuries, and fatalities.

Coordination of the various messages prepared for this campaign was accomplished by providing each individual media contractor a set of guidelines to follow. These guidelines specified the objectives for the materials, the message or the way the objective was to be implemented, and the way the message should be adapted within the theme and framework of the campaign. These guidelines helped maintain continuity among materials developed by various contractors.

1. First, all messages were required to reflect the combined tone of recreational quality and of authenticity.

2. There was use of similar illustration and photographic style. Sample illustrations and photographs were created early in the project by a commercial artist. Each contractor was then asked to conform in every way possible to the styles provided, without detracting from his own work.

3. An identical type style was required when possible, in all printed material. When contractors had a choice, we encouraged them to use the "optima" type font. This font has been judged to be "authoritative," but still "pleasant."

4. In order to invite reading, paragraphing was required to be short and visually well defined. We encouraged contractors to provide titles or short subtitles for main paragraphs. Copy style used a question-and-answer format and repetition whenever possible. For example, phrases and words such as ... "As a boater..." and, "Remember..." ... were to be used as repetitive devices to facilitate learning.

5. Additionally, contractors were asked to use systematically a series of logos designed for this campaign. These logos provided us with the means for endorsing various materials, and identifying them as part of the coordinated effort. Our logos were developed to create a feeling of recreation and to be bold, authoritative, and attractive. For increased flexibility, the logo elements were also designed to be readily compatible with the production of future materials.

This logo, with the Coast Guard seal, was designed as the general endorsing logo for all the educational materials. Four accompanying logos were developed for use with four different topical messages. This logo can be used for materials related to smaller boats usually powered with outboard motors, including small johnboats through outboard runabouts. This logo was created for larger cruisers .... This sailboat logo can be used for materials concerning seamanship.... And this lighthouse or lighted buoy symbol was developed to accompany materials dealing with navigating and piloting.

As supported and documented by data compiled from Coast Guard BARs and this education report, most boating accidents occur in two major categories - collision and "loading related." Our analysis of this accident data centered on one basic question: "What information could a boat operator have known in a given accident situation which would have helped him not only to avoid the accident ... but also to prevent serious injury, fatality, or property damage?"

Our approach to the educational task at hand has taken form in specific "educational objectives." In implementing each of these objectives or goals, production messages have been designed and delivery systems recommended to maximize both the timeliness of the message, and its exposure to recreational boaters.

Each production message is, by design, tailored through its associated delivery system for a specific boating audience, ... and each message is designed to be received by the boater in a specific viewing environment.

The coordinated integration of all these objectives, production messages, and delivery systems is the core of our campaign approach ... an approach which is essential for the effective implementation of the educational program.

PART II - PRESENTATION OF PRODUCTION

Collision accidents are not only the most dramatic of all boating accidents, but also the most serious in terms of property loss and personal injury.

Our first educational objective addresses these accidents and the need to inform or remind boaters of their obligations with respect to "rules of the road." Message content is therefore directed to the established "rules of the road," and the consequences of a boater's non-compliance.

The messages addressing this group of accidents involve the television medium. These messages are prepared in the form of PSA's ... Public Service Announcements. These PSA's are designed to take advantage of television's ability to reach a large, diverse audience and maximize a viewer's participation in the message. Animation was experimentally tested and selected as the production technique since, from a technical viewpoint, it permitted us to show very specific information without the distractions of real life.

Our message addressing rules of the road also took form through television computer animation.

The visually attractive and dynamic nature of these PSA's not only insures viewer attention, but also increases the likelihood of broadcast station use at desirable times. In addition, these animated spots may, by design, be tagged locally by a sponsoring boating organization.

Among the major causes of boating collisions, visibility problems rank first on the list. Our next educational objective therefore, is to inform or remind boaters about the effective display and interpretation of navigation lights ... and the accurate recognition and interpretation of piloting aids.

Our messages implementing this objective are presented through two highly visualized slide presentations, challenging boaters to properly interpret various navigation lights and aids. Each slide presentation, intended primarily for a classroom setting, utilizes the strategy of presenting a problem visually and asking the viewer or student to participate in its solution.

Feedback on the correct solution is given immediately after each problem.

In addition to the slide presentation, a computer-animated PSA was also developed to stimulate boater interest in navigation classes.

Notice again, how this PSA may be easily tagged by a local sponsoring organization.

As with other vehicles and craft, boat operator discipline, alertness, and attention are essential to accident free operation. Promoting these behaviors poses a particularly difficult problem, since compliance or non-compliance is largely attitudinal. Our next objective then is to encourage and maximize the boater's alertness to the total boating environment.

Message content implementing this objective centers on gaining compliance with strategies for maintaining attentiveness to the operation of a boat, and for this purpose, the production of a 16 mm film is recommended for classroom and television use. The 16 mm format was selected for its dynamic ability to stimulate viewer involvement and promote positive feelings and attitudes towards our information.

The proposed film production appears here in storyboard form and consists of a narrative dramatization of three serious boating mishaps. Operator inattention is identified through expert analysis as the probable cause, and boaters are encouraged to always remain alert.

Loading related boating accidents exhibit the highest fatality rate. At first glance, these swampings, capsizings, and falls overboard might appear to be far less serious than other more dramatic accidents, yet when examining the ratio of fatalities to accidents reported, they are the most dangerous to human life.

Coast Guard data show that the single most cited cause of loading related accidents is the inappropriate movement of one or more persons on board. Our first objective addressing these mishaps therefore, is to inform both boat operators and passengers of appropriate ways in which to change from one position to another in a small boat.

Note that our objective focuses on not only the boat operator, but also any passengers who may be on board. This new emphasis on reaching passengers as well as operators is necessary because loading related boating accidents can be caused by the inappropriate behavior of any one occupant.

In reaching both the boater and the passenger unfamiliar with safe boat operation, a learning situation can be implemented in the home by means of a newspaper supplement. This innovative home study approach to boater education is accomplished using a modified form of programmed learning or self-instruction. Case studies of actual boating accidents and useful information about loading safety can be combined with questions and answers to test the boater's knowledge and understanding. The structure of such a supplement can be flexible. For example, it can appear only once, or in serial form. Placement in a Thursday or Friday edition can peak reader interest, and allow sufficient time for exposure and study.

Small lightweight aluminum boats, such as a johnboat, are among those most frequently involved in loading related accidents. These boats are extremely unpredictable as far as stability is concerned, and they possess an extremely low freeboard. Our next objective and message is directed towards those persons, often new boaters, who have recently purchased such a boat. Specifically, our next goal is: to encourage boaters to determine the stability dynamics of their own boat, and to limit the operation of their boat to limits well within the margins of safety.

Our message is directed to identifying traditional methods for achieving the stable and balanced loading of small recreational boats, and takes form in a single concept pamphlet - prepared using model or illustrative techniques for subsequent educational pamphlet production. This pamphlet, as were the animated TV spots, is the product of experimental testing and is intended to be made available at point of purchase displays and places where boats are registered or licensed. The pamphlet might also be made available as supplemental reading for various courses or for home study use.

Loading related accidents can also be initiated by waves or wakes which have caused a swamping, capsizing or falling overboard. Included in this group of accidents are situations where the save or wake caused some person or object to change the balance or stability of a boat - thus causing an accident. Our next objective therefore, is to maximize a boater's alertness to exceptional wave and wake conditions relative to the freeboard and stability of his boat. Our messages implementing this objective are directed at identifying the nature of loading related accidents initiated by waves or wakes, emphasizing the ways in which these accidents can be avoided.

Established newspaper boating columns can be utilized for an educational purpose, and this sample Coast Guard boating information press kit can be recommended. Since as much as 80 percent of all non-advertising content in newspapers originates with the news source itself, our press kit materials can be readily used in the over 1200 boating columns appearing in newspapers either seasonally or throughout the year. Each kit can contain an introductory letter detailing the content of the material as related to our educational objective ... and each kit can allow an individual newspaper columnist to adapt the statistical information to local boating conditions.

Press material can also be provided in the form of newspaper filler, recognizing an editor's occasional need for small units of useful information. This material can, of course, be only used by a newspaper when space corresponding to the length of a given item is available.

Other production materials addressing this objective can include slide presentations and single concept pamphlets. Each of these materials can offer additional visual support, and can be utilized in both classroom and home study environments.

Being alert to and recognizing a dangerous wave or wake condition is one thing. Being able to execute an adaptive maneuver while in the boat is another. Out next objective for the educational program concerns an operator's response to recognizing a dangerous wave or wake situation. The intent here is to increase the boater's speed of reaction and precision of execution of maneuvers reacting to exceptional wave and wake conditions. Our message content is therefore directed to providing instruction on adaptive maneuvers in these specific areas.

Highly visualized materials, such as 16 mm film and slide presentations, are recommended as most suitable for this purpose. Each could be utilized in a classroom environment where recreaional boaters can learn to develop their maneuvering skills.

However, this approach to communicating boating information would unfortunately exclude a large group of boaters who statistically account for a significant portion of these loading related accidents. These boaters are primarily sportsmen -- the hunter and fisherman -- whose only use of a boat is as part of their regular sporting equipment. Since for them, there is no real interest in pursuing boat handling literature, feature material can be professionally prepared and submitted for publication in hunting and fishing magazines. This material deals with water survival tips for hunters and fishermen who often may be guilty of ignoring or breaking some of the most basic boating rules.

If an operator knows the safe stability limits of his boat, he will be better able to reduce the number of uncertainties he must deal with during an emergency situation such as high wind and waves. Our next objective therefore encourages boaters to determine the stability and righting characteristics of their boat during safe shore-side situations. As with several of our other boating messages, this one also can appear in the form of computer animation.

But, so far, we have been concerned with educational materials directed at avoiding and preventing the accidents themselves. A comprehensive and coordinated boating education campaign would not however be complete without some attention directed to the recovery of all persons after an accident. Our next objective deals with this subject of accident recovery and addresses the need to encourage the ownership and thoughtful use of personal flotation devices (or PFDs) by the owner and operator of a boat.

Our message content deals with the advantages and limitations of using various PFDs, and in this professionally prepared magazine feature, personal flotation devices are identified and discussed, with attention given to PFD types, uses, and characteristics. This article is designed to appear in recreatinal boating magazines and should be of interest to all boating enthusiasts. It can also appear in airline or other specialty publications, or can be produced as an informative brochure available at marinas or boating supply stores.

Our message relating to PFD use can also be adapted to outdoor advertising; that is, billboards or outdoor bulletins. Outdoor provides the unique capability of reaching the operator in proximity to his actual boating environment. A billboard, for example, placed on a roadway giving access to local marinas, would expose all boaters traveling en route...to our safety message.

Television computer animation can also be employed.

This PSA additionally illustrates the flexibility available by using the computer animation technique. If desired, the general endorsing Coast Guard logo could be easily utilized with differing audio tracks.

Related to our desire to minimize the possibility of serious injuries or fatalities after an accident, our next educational objective addresses the need to stimulate resourceful thinking during any decision by a boater to remain with a swamped or capsized boat.

Our message content therefore deals with both the advantages and dangers of remaining with such a boat, and the need for having a rehearsed plan of response in the event of an accident. Specific information in all message materials includes discussion of signalling equipment, determination of distance from shore, and evaluation of environmental conditions.

Emphasis here in all production messages is on local conditions. For example, a Super 8 mm film production such as this one can be prepared inexpensively by a local boating organization to teach boaters proper ways to deal with accident recovery situations unique to their area. Content would include precise recommendations about staying with a boat once in the water. Much of this information is dependent on local water and weather conditions.

As an alternative, a professionally prepared script can be made available to local television stations for the production of a recovery oriented television feature. This feature could be aired within several program formats, including news, sports, and "consumer affairs."

Radio announcements can also be integrated in the communication of the campaign messages. Radio is not only a very personal medium, but it also has the ability to deliver information to individuals wherever they may be. A radio announcement can be easily tied in with outdoor advertising bulletins, and radio can also be used to provide the most up to date boating information to the general public.

So far in the determination of all our educational objectives, we have sought to identify and address those factors which can be considered direct causes of both collision and loading related accidents. There are, however, a number of associated factors affecting the human performance system which can influence the ability of a boater to react properly under even optimum conditions. Factors such as alcohol, fatigue, sun, glare, and noise can all be classified in this category. Our final objective, therefore, is to call boater attention to those associated factors aside from actual causes of accidents that can contribute to the occurrence of an accident.

Our message implementing this objective can take a variety of forms. Newspaper filler can again be supplied, and radio announcements can be integrated in the communication of our message. Outdoor advertising can be used to address these safety factors to the travelling boater.

A final means for addressing these associated factors and additionally calling attention to all the interrelated objectives in the total campaign, involves the use of commercially produced advertising specialties. This series of items was selected to remind the boater wherever he may be of the boating campaign and the numerous safety messages. The specialty items then can hopefully be used to trigger recommended boater actions in the event of an emergency. Key chains, first aid kits, and bandage dispensers, for example, can all be imprinted with various logos. Logos can be applied to accessories likely to accompany the drinking of alcoholic beverages. Pencil clips and highly reflective materials such as these logo stickers can also be an attractive way to remind boaters of our messages.

This supplement to the education reports was intended to present examples of various production materials which address the objectives of our educational program. It was meant to be illustrative and to show how a variety of media and messages can be coordinated for the accomplishment of those objectives. Our strategy for presenting educational messages uses campaign methodology. It is a type of conceptual framework requiring a statement of campaign theme and clearly defined objectives. The advantages of this approach are worth reiterating. The campaign approach provides a means for developing and coordinating all present and future educational materials. It allows the integration of numerous messages uses campaign methodology. It is a type of conceptual framework requiring a statement of campaign theme and clearly defined objectives. the internalization of information. And, finally, the campaign approach facilitates compliance with recommendations made in sequence over a period of time.

We feel that the kind of materials illustrated here can effectively reduce recreational boating accidents when used purposefully in a coordinated manner and we have shown some ways these materials are intended to be used. The task that remains is to implement the educational program using the guidelines established in this report.

APPENDIX O-1. SCRIPT FOR TELEVISION SPOTS (10 SECONDS EACH) USING COMPUTER ANIMATION OF EDUCATIONAL LOGOS*

Example using Outboard Runabout Logo Animation:

> "DO YOU KNOW ALL YOU WANT TO KNOW ABOUT POWER BOATING? A U. S. COAST GUARD AUXILIARY COURSE STARTS JANUARY 17. CALL YOUR MARINE DEALER FOR DETAILS."

Example using Navigation/Piloting Logo Animation:

> "INTERESTED IN BRUSHING UP ON YOUR NAVIGATION SKILLS? A U. S. POWER SQUADRON COURSE STARTS JANUARY 17. CALL YOUR MARINE DEALER FOR DETAILS."

Example using Sailboat Logo Animation:

> "DO YOU KNOW IF YOUR BOAT WILL FLOAT WHEN SWAMPED OR CAPSIZED? HAVE YOU VERIFIED IT UNDER CONTROLLED CONDITIONS? CHECK YOUR BOAT FOR ITS OWN FLOTATION CHARACTERISTICS."

Example using General Endorsing Logo Animation:

> "DO YOU KNOW IF YOUR PFDS WILL SUPPORT THE SAME WEIGHT AS LAST YEAR? PFDS LOSE BUOYANCY AS THEY AGE. TRY YOUR PFDS BEFORE BOATING THIS SEASON."

---

* Audio track prepared by the Coast Guard can be included; however, an alternative utilization of the computer animations is to have messages written locally in conjunction with the national program objectives. Audio track is then recorded at a local television station.

APPENDIX 0-2. SCRIPT FOR TELEVISION SPOT (30 SECONDS) USING ARTIST ANIMATION*

	Video		Audio
(00:00)	FADE IN	1.	ANNOUNCER (VO):
	BLUE BACKGROUND, WORDS APPEAR ONE-BY-ONE AS ANNOUNCER READS THEM.	2.	When you go out in a boat, other boaters
		3.	are assuming that you know the
		4.	rules of the road. . .
	FADE OUT WDS "DO YOU?"	5.	Do you?
	DISSOLVE TO POINT-OF-VIEW SHOT THRU BOAT'S WINDSHIELD AS ANOTHER BOAT APPROACHES FROM HEAD-ON.	6.	(FADE IN SFX: WATER AND MOTORBOAT)
		7.	Suppose another boat approaches you
		8.	and signals two blasts. (SFX: BOAT
	"BLAST LINES" APPEAR	9.	APPROACHING, BLAST BLAST)
(00:15)	FREEZE-FRAME	10.	What do you do? (PAUSE) (SFX OUT)
	DISSOLVE TO BLUE BACKGROUND	11.	Want to find out?
	COAST GUARD LOGO FLOATS DOWN AND SETTLES ON LOWER THIRD OF SCREEN.	12.	For a recorded answer, call the
		13.	Coast Guard at
	1-800-594-6000 APPEARS A CHUNK AT A TIME IN MIDDLE OF SCREEN.	14.	1-800-594-6000 ("ONE, EIGHT-HUNDRED,
		15.	FIVE, NINE, FOUR, SIX-THOUSAND").
	"YOU'RE OBLIGATED TO KNOW, YOU KNOW" APPEARS A WORD AT A TIME AT TOP OF SCREEN.	16.	We'll tell you what's meant by two blasts.
		17.	Because if you're a boater, you're obligated
		18.	to know, you know.
(00:27)	EDUCATIONAL LOGO APPEARS NEXT TO COAST GUARD LOGO	19.	(SFX: DING DING)
(00:28)	FADE TO BLACK	20.	FADE TO BLACK

---

* This script is for the "model" 30 second television spot that was tested with "less participative" spots in Part III of the Educational Alternatives for Boating Safety final report.

APPENDIX 0-3. SCRIPT FOR 35 MM SLIDE SHOW ON NAVIGATION/PILOTING AIDS

TITLE: NAVIGATION AIDS - SIGNPOSTS FOR BOATERS

Notes to Instructor:

1. Review materials before presentation. The slides are numbered.
2. Be sure they are in the proper order.
3. Where (PAUSE) occurs in the text, this indicates the instructor should wait for the class to respond, before moving on to next sentence.
4. Explain to class that returning from seaward (as entering a river) that the red or white colors, whether lights, paints, etc., are on starboard side and green or white are on port side. The mnemonic to remember is "red right returning."

Narration:

Slide #1

THE UNITED STATES COAST GUARD IN COOPERATION WITH (insert the name of your organization) IS PLEASED TO PRESENT THIS PROGRAM FOR THE FURTHERING OF YOUR EDUCATION IN SEAMANSHIP SKILLS.

Slide #2

(No Narration)

Slide #3

(No Narration)

Slide #4

THIS VIEW SHOWS A MYTHICAL PLACE IN WHICH A CHANNEL COMING IN FROM THE OCEAN AND ANOTHER CHANNEL FROM A CONVERGING RIVER, MERGE.... YOU WILL NOTICE THAT

THERE IS A REPRESENTATIVE GROUP OF BUOYS SHOWN HERE; CAN BUOYS, NUN BUOYS, JUNCTION BUOYS, FISH NET AREA BUOYS, FIXED DAYBOARDS WITH APPROPRIATE SIGNS ON THEM, AND SAFE ANCHORAGE BUOYS.... THE VARIOUS AIDS WILL BE DISCUSSED IN MORE DETAIL, AS THE PRESENTATION PROCEEDS.... THIS SCENE IS TO GIVE YOU AN OVERALL VIEW OF OUR THEORETICAL AREA THAT WE WILL BE DISCUSSING... HOW MANY OF THESE AIDS DID YOU RECOGNIZE? PLEASE ASK ANY QUESTIONS AT ANY TIME...

Slide #5

THE AMERICAN BUOYAGE SYSTEM IS COMPOSED OF TWO TYPES OF WHICH THE FIRST AND MOST DOMINANT IS THE LATERAL SYSTEM.... THE SECOND SYSTEM IS THE CARDINAL ARRANGEMENT... THE CARDINAL SYSTEM IS SOMETIMES USED ON NAVIGABLE LAKES AND STREAMS THAT ARE NOT CONNECTED TO OTHER FEDERAL NAVIGABLE WATERS... THE PRIMARY BUOYAGE SYSTEM IS THE LATERAL SCHEME... THE EASIEST WAY TO LEARN AND REMEMBER THIS SYSTEM, IS THAT THE VARIOUS BUOYS AND AIDS ARE ALWAYS TELLING YOU TO STAY TO ONE SIDE OR THE OTHER OF THEM, WHEN PASSING... SO THINK OF IT IN THOSE TERMS, JUST STAY AWAY FROM THE BUOYS: THAT MEANS THAT HORIZONTALLY OR LATERALLY YOU KEEP CLEAR OF THE PARTICULAR BUOY YOU ARE OBSERVING.... BUT USE IT'S MEANING FOR THE SAFE PASSAGE OF YOUR BOAT....

Slide #6

LISTED UNDER, "INLAND AIDS," YOU WILL SEE DESCENDING BLOCKS LABELED INTRACOASTAL, WESTERN RIVERS AND UNIFORM STATE.... THIS POINTS OUT THAT ALL SYSTEMS ARE DERIVED FROM INLAND AND THE OTHER THREE HAVE ONLY MINOR DEVIATIONS..... THIS COURSE IS HOWEVER RESTRICTED TO INLAND RULES.....

Slide #7

AS THE ARROW INDICATES WE ARE PROCEEDING FROM SEAWARD TOWARD A BAY AND WE ARE PASSING BETWEEN A RED AND A BLACK BUOY... DO YOU RECOGNIZE THESE AIDS? (PAUSE)...

IF YOU SAID LIGHTED RED AND BLACK BUOYS, YOU ARE CORRECT.... DO YOU RECOGNIZE THE NEXT GROUP OF RED AND BLACK BUOYS? (PAUSE)... DID YOU SAY A RED NUN AND A BLACK CAN? A NUN IS TRUNCATED AND RED.... A CAN IS CYLINDRICAL AND PAINTED BLACK.... NUNS AND CANS ARE NEVER LIGHTED....

Slide #8

DO YOU SEE THE NEXT BUOY WITH THE TOP HALF RED AND THE BOTTOM HALF BLACK WITH A LIGHT ON TOP? WHAT DOES IT TELL YOU? (PAUSE).... DID YOU NOTICE THE SPLIT ARROW? THIS TELLS YOU, THE SKIPPER, THAT YOU CAN FOLLOW THE RIGHT OR LEFT CHANNELS BUT THE PREFERRED CHANNEL IS TO PORT: KEEPING THE TOP RED BAND ON YOUR STARBOARD....

Slide #9

DO YOU KNOW WHAT THIS BLACK AND WHITE VERTICAL MARKED BUOY IS INDICATING? IS IT LIGHTED AND DOES IT HAVE A WHISTLE? (PAUSE).... THIS IS A MID-CHANNEL BUOY... YES, IT IS LIGHTED.... YES. IT HAS A WHISTLE.... YOU MAY PASS ON EITHER SIDE AS THE ARROWS INDICATE.... BLACK AND WHITE MARKINGS OF THIS TYPE ARE ALSO FOUND ON CANS AND NUNS, MAKING THEM MID-CHANNEL MARKERS, ALSO....

Slide #10

THIS GROUP OF BUOYS DOES NOT HAVE ANY SIGNIFICANT LATERAL MEANING.... HOW MANY CAN YOU RECOGNIZE? (PAUSE).... [Move on to slide #11.]...

Slide #11

[Instructor should point out each buoy as narration proceeds].

THE WHITE BUOY SHOWS A SAFE AREA TO ANCHOR... THE YELLOW IS A QUARANTINE ANCHORAGE.... WHITE WITH GREEN TOP TELLS YOU TO SLOW DOWN AND MAKE NO WAKE AS YOU ARE PASSING A DREDGE.... THE BLACK AND WHITE HORIZONTAL BANDED BUOYS ARE USED TO INDICATE A

FISH NET AREA AND YOU SHOULD STAY OUT.... THE ORANGE AND WHITE HORIZONTAL IS A SPECIAL PURPOSE BUOY AND YOU SHOULD LOOK ON YOUR CHART TO SEE WHAT IT IS INDICATING....

Slide #12

HERE ARE TWO ORANGE AND WHITE BUOYS WITH VARIOUS DESIGNS APPLIED TO THEM... WHAT DO THEY MEAN? (PAUSE)... [Go to slide #13].

Slide #13

[Instructor should point out each buoy as he reads about them].

THE TIPPED OVER SQUARE WITH THE TWO ORANGE STRIPES IS A BUOY SIGNALLING THAT THIS IS A DANGER AREA AND TO PROCEED WITH CARE.... THE TIPPED OVER SQUARE WITH THE CROSS IN THE MIDDLE SIGNIFIES THAT YOU ARE APPROACHING AN EXCLUSION AREA AND YOU MUST STAY OUT.... IT ALSO HAS TWO ORANGE STRIPES....

Slide #14

THE NUN IS A CYLINDER WITH THE TOP PORTION A TRIANGLE IN PROFILE BUT WITH THE TOP CUT OFF... IT IS THUS TRUNCATED.... THEY ARE PAINTED RED.... NEVER LIGHTED.... THE CAN BUOY IS A CYLINDER WITH A FLAT TOP.... PAINTED BLACK.... NEVER LIGHTED.... BOTH NUNS AND CANS HAVE OR CAN HAVE RADAR REFLECTORS AND GREEN OR RED REFLECTOR PATCHES, RESPECTIVELY.... REMEMBER, WHEN RETURNING FROM SEAWARD TO KEEP THE RED NUN ON YOUR STARBOARD AND THE BLACK CAN ON YOUR PORT....

Slide #15

LIGHTED BUOYS ALWAYS ARE ON A SMALL TOWER PAINTED EITHER RED, BLACK, RED-BLACK, BLACK-RED OR BLACK-WHITE.... THE FLOATING BASE IS ALWAYS LARGER THAN THE TOP PORTION... THEY CAN HAVE RED, WHITE OR GREEN LIGHTS ON TOP.... ALSO, WHISTLES, GONGS AND SIRENS MAY BE INSIDE THE SUPERSTRUCTURE.... ALL OTHER BUOYS LOOK LIKE CANS WITH SPECIAL COLORS AND MARKINGS.

Slide #16

SOLID RED AND BLACK BUOYS HAVE NUMBERS, OR NUMBERS AND LETTERS IN COMBINATION... THUS YOU CAN IDENTIFY THEM BY LOOKING AT YOUR CHART AND TELL WHERE YOU ARE AT THAT MOMENT.... ALL OTHER BUOYS HAVE LETTERS.... NUMBERALS INCREASE FROM SEAWARD AND ARE KEPT IN SEQUENCE EVEN IF A PARTICULAR BUOY IS OMITTED.... ODD NUMBERS ON PORT SIDE WHEN RETURNING FROM SEAWARD AND EVEN NUMBERS ON STARBOARD....

Slide #17

LETTERS WITHOUT NUMERALS ARE USED ON BLACK AND WHITE VERTICALLY STRIPED BUOYS, RED AND BLACK HORIZONTALLY BANDED BUOYS, SOLID YELLOW BUOYS, AND OTHER BUOYS NOT SOLID RED AND BLACK.... ARE THERE ANY QUESTIONS ON THIS?

Slide #18

WHAT LIGHTS WOULD YOU EXPECT TO SEE ON THESE BUOYS? (PAUSE)... THE RED BUOY CAN HAVE A WHITE OR RED LIGHT... THE BLACK BUOY WILL HAVE A WHITE OR GREEN LIGHT.... THE RED AND BLACK (AND BLACK AND RED) HORIZONTAL BUOYS, IF RED ON TOP; A WHITE OR RED LIGHT AND IF BLACK ON TOP, A WHITE OR GREEN LIGHT.... THE BLACK OR RED BUOYS HAVE FOUR PATTERNS OF LIGHT - FIXED, FLASHING, OCCULTING OR QUICK FLASHING... THE MID-CHANNEL BLACK-WHITE, MORSE CODE "A".... THE BLACK AND REDS USE INTERRUPTED QUICK FLASHING....

Slide #19

HERE ARE ALL THE BUOYS WITH THEIR RESPECTIVE LIGHTS... CAN YOU NOW IDENTIFY EACH ONE? (PAUSE).... ON THE RED, A WHITE OR RED LIGHT.... ON THE BLACK, A WHITE OR GREEN.... WHAT COLOR LIGHTS ARE ON THE NUN AND CAN BUOYS? (PAUSE).... NONE... YOU DO NOT LIGHT A CAN OR NUN....

Slide #20

OBSERVE THE TOP LIGHT (1).... THE CONTINUOUS STEADY LIGHT IS CALLED WHAT? (PAUSE).... FIXED IF IT DOES NOT CHANGE COLOR.... ALTERNATING IF IT CHANGES COLOR.... (ABREV. F. OR ALT.).... THE MIDDLE LIGHT (2).... THE EQUAL SPACED TRIANGLES ARE CALLED WHAT? (PAUSE).... IF THE LIGHT COLOR DOES NOT CHANGE, THIS IS A FLASHING LIGHT.... (ABREV. FL.).... IF THE COLOR CHANGES THIS IS AN ALTERNATING FLASHING.... (ABREV. ALT. FL.).... BOTTOM LIGHT (3).... WHAT DOES THIS LIGHT MEAN TO YOU? (PAUSE)... IF THE LIGHT DOES NOT CHANGE COLOR IT IS OCCULTING.... (ABREV. OCC.)..... AN OCCULTING LIGHT IS TOTALLY ECLIPSED AT REGULAR INTERVALS, THE DURATION OF THE LIGHT IS ALWAYS GREATER THAN THE DURATION OF DARKNESS.... ALL OF THE ABOVE CAN BE RED, WHITE, OR GREEN IN COLOR.... WHEN YOU LOOK AT A CHART IT IS IMPORTANT TO BE ABLE TO IDENTIFY THE VARIOUS LIGHTS, SO WHEN YOU LOOK OVER THE WATER YOU CAN RECOGNIZE THEM.... YOU MUST HOWEVER MAKE USE OF THE LIGHT LISTS....

Slide #21

THIS SLIDE IS OF A FAMILY OF LIGHTS.... NOW, DO YOU REMEMBER #4? (PAUSE).... THIS IS THE FLASHING LIGHT.... THE LIGHT IS ALWAYS ON LESS THAN THE DURATION OF DARKNESS... (ABBREV. FL.).... IF THE COLORS CHANGE IT BECOMES AN ALTERNATING FLASHING..... (ABREV. ALT. FL.).... THE NEXT #5 IS CALLED WHAT? (PAUSE).... THIS IS A QUICK FLASHING.... IT FLASHES NOT LESS THAN 60 TIMES A MINUTE... THESE NEVER CHANGE COLOR.... #6 SHOWS US, WHAT KIND OF A LIGHT? (PAUSE).... THIS IS A GROUP FLASHING LIGHT, IT SHOWS AT REGULAR INTERVALS WITH 2 OR MORE FLASHES... (ABREV. GP. FL.).... IF THE LIGHT CHANGES COLOR IT BECOMES AN ALTERNATING GROUP FLASHING.... (ABREV. ALT. GP. FL.).... LASTLY, #7 SHOULD TELL YOU NOW THAT THIS IS A ________________LIGHT..... (ANS)... THIS IS AN INTERRUPTED QUICK FLASHING.... SHOWS QUICK FLASHES FOR ABOUT 4 SECONDS, FOLLOWED BY A DARK PERIOD OF 4 SECONDS.... (ABREV. I. QK. FL.)....

Slide #22

THE #8 LIGHT TELLS YOU THIS IS A ________________ LIGHT.... (ANS)... THIS IS AN OCCULTING LIGHT IF THE COLOR DOES NOT CHANGE.... THE DURATION OF LIGHT IS ALWAYS LONGER THAN THE DURATION OF DARKNESS.... (ABREV. OCC.).... IF THERE IS A COLOR VARIATION IT BECOMES AN ALTERNATING OCCULTING... (ABREV. ALT. OCC.).... THE #9 LIGHT IS WHAT KIND? (PAUSE).... THIS IS CALLED A GROUP OCCULTING.... A LIGHT WITH 2 OR MORE ECLIPSES AT REGULAR INTERVALS.... NEVER ANY COLOR VARIATION.... (ABREV. GP. OCC.).....

Slide #23

WHAT WOULD YOU CALL THIS LIGHT #10 (PAUSE).... THIS IS THE SO-CALLED MORSE CODE.... IT IS USED ON MID-CHANNEL BUOYS.... ALWAYS OF ONE COLOR.... (ABREV. MO. (A)).....

Slide #24

RADAR REFLECTORS ARE FOUND ON MOST BUOYS TODAY.... THE PLATES ON TOP OF EACH BUOY OFFER A REFLECTIVE SURFACE FOR THE RADAR SIGNAL....

Slide #25

PLUS HAVING RADAR REFLECTORS THESE BUOYS HAVE REFLECTIVE TAPE ADDED ON EACH OF FOUR SIDES.... THIS REFLECTIVE TAPE AIDS THE SEARCHLIGHT BEAM TO REFLECT BACK A STRONGER REFLECTION TO YOUR BOATS POSITION FOR EASIER OBSERVATION.... TAPE COLORS ARE WHITE, RED AND GREEN..... THEY ARE ON THEIR APPROPRIATE COLORED BUOYS.....

Slide #26

SOUND BUOYS ARE BASICALLY BELLS AND WHISTLES MOUNTED ON BUOYS.... A GONG IS A COMBINATION OF BELLS... WAVE ACTION, STORED GASES, AND ELECTRIC BATTERIES ARE THE POWER SOURCES.... THESE BUOYS AID YOU IN FINDING THEM BY THEIR SOUND EMISSION WHEN YOU CAN'T SEE THEM, AS IN A FOG.....

Slide #27

THIS IS A TYPICAL DAYMARK... IT IS FIXED AND THIS ONE IS WARNING OF AN UNDERWATER JETTY... VERY ACCURATE AS TO POSITION, AS THEY ARE FIXED IN PLACE....

Slide #28

DO YOU RECOGNIZE THESE DAYMARKS? (PAUSE)... WE WILL NOW GO TO THE NEXT SLIDE FOR IDENTIFICATION.... REMEMBER THEY HAVE THE SAME MEANING AS BUOYS, ONLY THEY ARE FIXED....

Slide #29

DID YOU IDENTIFY THESE DAYMARKS?

Slide #30

IS THIS A LIGHTED DAYMARK? (PAUSE)... NO... THIS IS A MINOR LIGHT WITH A DAYMARK BELOW IT... MINOR LIGHTS ARE SUBSTITUTED FOR BUOY LIGHTS, WHEN CONDITIONS ALLOW....

Slide #31

A LIGHTHOUSE IS A DISTINCTIVE STRUCTURE EXHIBITING A MAJOR NAVIGATIONAL LIGHT.... THEY ARE IMPOSING STRUCTURES WITH VERY INTENSE LIGHTS... USUALLY DISPLAYING A COMPLEX LIGHT PATTERN... LIGHTSHIPS ARE VESSELS OF DISTINCTIVE DESIGN AND MARKINGS: EQUIPPED WITH LIGHTS, FOG SIGNALS AND RADIOBEACONS... THEY ARE ANCHORED....

Slide #32

WHEN YOU ARE SAILING DOWN A RANGE, YOU WOULD SEE TWO MARKERS OR LIGHTS, ONE APPARENTLY ON TOP OF THE OTHER... THUS YOU WOULD PASS SAFELY BETWEEN THE TWO SHOALS S AND S'. NOW IF YOUR BOAT MOVED TO STARBOARD WHICH WAY WOULD THE BOTTOM LIGHT MOVE? (PAUSE)... THE CLOSEST LIGHT WOULD MOVE LEFT.... WHICH MEANS YOU

WOULD RUN AGROUND ON THE SHOALS, IF YOU DID NOT STEER TO PORT... WHEN THE LIGHT MOVES BACK UNDER THE TOP LIGHT YOU ARE BACK ON RANGE.....

Slide #33

THIS PLOT IS SHOWN TO INTRODUCE YOU TO OTHER AIDS TO NAVIGATION.... THIS 'RDF PLOT' IS MADE WITH A RADIO-LIKE INSTRUMENT CALLED A "RADIO DIRECTION FINDER." LORAN, RACON AND RADAR ARE ALSO AIDS, BUT MUCH TOO COMPLICATED TO DESCRIBE IN THIS QUICK REVIEW.

Slide #34

THIS IS A PORTION OF A CHART... HERE WE SEE SOME EXAMPLES OF THE REPRESENTATIVE SYMBOLS, LINES, DEPTHS, ETC. FOUND ON CHARTS... SECURE A CHART OF YOUR LOCAL AREA: YOU WILL DISCOVER MANY THINGS YOU DIDN'T KNOW AND THUS BECOME A MORE PROFICIENT BOATER.....

Slide #35

TWO PAGES OF TWENTY-ONE FROM "NAUTICAL CHART SYMBOLS AND ABBREVIATIONS" ARE SHOWN FOR YOUR FAMILIARIZATION OF THE ITEMS THAT MIGHT BE FOUND ON CHARTS.... A MARINE CHART OR RIVER CHART HAS MORE INFORMATION THAN YOU MIGHT EVER NEED, BUT IF YOU HAVE YOUR CHARTS WITH YOU, THEY WILL BE OF IMMENSE HELP TO YOU SOMEDAY... NEVER VENTURE UPON THE WATERS WITHOUT YOUR CHARTS....

Slide #36

HERE ARE A FEW OF THE PUBLICATIONS THAT ARE AVAILABLE TO YOU THE BOATING PUBLIC.... WE STRONGLY RECOMMEND THAT YOU SECURE SUCH BOOKS AND DO SOME ENJOYABLE READING.... BOOK LEARNING MUST BE SUPPLEMENTED HOWEVER BY ACTUAL EXPERIENCE.

Slide #37

DON'T LET THIS HAPPEN TO YOU.... IMPROVING YOUR SEAMANSHIP, WILL REDUCE THE CHANCES THAT THIS WILL HAPPEN..... NOTICE THE BLACK BUOY OUTSIDE OF THE WRECK....

Slide #38

AS A BOATER YOU'RE OBLIGATED TO KNOW ABOUT THESE NAVIGATION AND PILOTING AIDS....

APPENDIX 0-4. SCRIPT FOR 35 MM SLIDE SHOW ON NAVIGATION LIGHTS

TITLE: NAVIGATION LIGHTS - IDENTIFICATION AND USES

Notes to Instructor:

1. Review materials before presentation. The slides are numbered. Be sure they are in the proper order.
2. Where (PAUSE) occurs in the text, this indicates you, the instructor, should wait for the class to respond. before moving on to the next sentence.
3. Before turning on the projector review the classes of boats -
    a. Class A . . . . . . under 16'
    b. Class 1 . . . . 16' to less than 26'
    c. Class 2 . . . . 26' to less than 40'
    d. Class 3 . . . . .40' to 65'

Narration:

Slide #1

THE UNITED STATES COAST GUARD AND (insert the name of your organization) PRESENTS. . . .

Slide #2

(No narration)

Slide #3

(No narration)

Slide #4

THE LIGHTS ON YOUR BOAT CONVEY INFORMATION TO OTHERS AT NIGHT AND UNDER RESTRICTED VISIBILITY CONDITIONS.... YOUR LIGHTS ARE DEFENSIVE IN NATURE.... THEY ARE USED FOR IDENTIFICATION AND WARNING, NOT FOR DECORATION.... THE PRIMARY PURPOSE OF YOUR NAVIGATION LIGHTS IS TO PREVENT COLLISIONS WITH OTHER VESSELS.... THIS PRESENTATION

IS BASED ON SPECIFICATIONS FOR LIGHTS ACCORDING TO THE INLAND RULES OF THE ROAD.

Slide #5

CAN YOU RECOGNIZE WHAT HEADING THIS CLASS 1 BOAT IS ON RELATIVE TO YOU IN YOUR OWN BOAT? (PAUSE).

Slide #6

THIS IS A LEFT TO RIGHT CROSSING SITUATION.... WHO HAS THE RIGHT-OF-WAY? (PAUSE).... YOU DO.... AN EASY WAY TO REMEMBER THE BASIC RIGHT-OF-WAY RULES IS GREEN FOR GO: RED FOR GIVE WAY (OR EVEN STOP)....

Slide #7

HOW ABOUT THIS ONE? (PAUSE)....

Slide #8

THIS IS A HEAD-ON APPROACHING SITUATION.... USE YOUR HORN TO SIGNAL YOUR INTENTIONS OR TO RESPOND TO THE OTHER BOAT'S SIGNAL....

Slide #9

IS THIS AN OVERTAKING SITUATION OR A BOAT AT ANCHOR? (PAUSE)....

Slide #10

THIS IS AN OVERTAKING SITUATION BECAUSE THE BOAT IS MOVING AND THE LIGHT IS ON THE STERN.... MANY BOATERS USE THEIR STERN LIGHT AS AN ANCHOR LIGHT.... ON CLASS A AND CLASS 1 BOATS THE STERN LIGHT MAY NOT BE A LEGAL LIGHT.... YOUR PASSENGERS OR THE BOW MAY BLOCK THE LIGHT FROM SHOWING FORWARD.... AN AUXILIARY WHITE LIGHT SHOULD BE MOUNTED ON THE HIGHEST FORWARD PART OF YOUR BOAT AS AN ANCHOR LIGHT, WHICH CAN BE SEEN FROM 360 DEGREES OR 32 POINTS.

Slide #11

DO YOU RECOGNIZE THIS ONE? (PAUSE)....

Slide #12

IN THIS HEAD-ON APPROACHING SITUATION YOU CAN SEE THE WHITE BOW LIGHT, ELEVATED MAST LIGHT AND SEPARATE RED PORT AND GREEN STARBOARD RUNNING LIGHTS WHICH ARE USED ON CLASS 2 OR CLASS 3 VESSELS....

Slide #13

THIS ONE? (PAUSE)....

Slide #14

AN OVERTAKING SITUATION....

Slide #15

THIS ONE? (PAUSE)....

Slide #16

CROSSING LEFT TO RIGHT... YOU ARE THE PRIVILEGED BOAT.

Slide #17

AND THIS ONE? (PAUSE)....

Slide #18

CROSSING RIGHT TO LEFT.... YOU MUST YIELD THE RIGHT-OF-WAY....

Slide #19

WHAT COULD THIS BE? (PAUSE)....

Slide #20

A VESSEL OVER 65 FEET IN LENGTH... NOTICE THAT ITS RUNNING LIGHTS ARRANGEMENT HAS AN AFT 32 POINT WHITE LIGHT, 15 FEET HIGHER THAN THE FORWARD 20 POINT WHITE LIGHT... VISIBLE 5 MILES... THE RED AND GREEN SIDE LIGHTS MUST BE SCREENED FOR 36 INCHES AND VISIBLE 2 MILES.

Slide #21

YOU NEED TO KNOW THE OTHER VESSLE'S BEARING, SIZE AND SPEED IN ORDER TO AVOID A COLLISION, BY GIVING THAT VESSEL SUFFICIENT CLEARANCE.... REMEMBER, YOU DON'T ALWAYS HAVE THE RIGHT-OF-WAY OVER VERY LARGE OR VESSELS OF LIMITED MANEUVERABILITY... YOU NEVER HAVE THE RIGHT-OF-WAY THROUGH THE HULL OF ANOTHER VESSEL.

Slide #22

RECOGNIZE THIS ONE? (PAUSE)...

Slide #23

IN THE CASE OF THIS TUG PUSHING A BARGE YOU MUST BE PREPARED FOR ITS WAKE WHICH CAN SWAMP A SMALL BOAT IF THE SKIPPER IS CAUGHT UNAWARES.

Slide #24

WHAT COULD THIS BE? (PAUSE)....

Slide #25

THIS FERRY HAS EQUAL HEIGHT RANGE LIGHTS AND CARRIES TWO SETS OF RED AND GREEN RUNNING LIGHTS.... ONE SET OR THE OTHER IS USED DEPENDING ON WHICH DIRECTION THE FERRY IS MOVING....

Slide #26

RECOGNIZE THIS ONE? (PAUSE)....

Slide #27

SAILBOATS UNDER SAIL AND NOT UNDER AUXILIARY POWER CARRY SEPARATE RED AND GREEN RUNNING LIGHTS OR A RED/GREEN COMBINATION AND A WHITE STERN LIGHT... A SAILBOAT UNDER SAIL AND POWER OR UNDER POWER ALONE MUST DISPLAY THE SAME NAVIGATION LIGHTS AS A POWER BOAT OF ITS CLASS.... SAILBOATS NORMALLY HAVE THE RIGHT-OF-WAY EXCEPT IN EXTENUATING CIRCUMSTANCES.

Slide #28

WHAT IS THIS? (PAUSE)....

Slide #29

A SMALL SAILBOAT WITHOUT LIGHTS IS SIGNALING YOU IN ORDER TO PREVENT A COLLISION.... SMALL BOATS WHICH DO NOT HAVE LIGHTS MUST CARRY A LANTERN OR FLASHLIGHT TO ALERT OTHER BOATERS IN ENOUGH TIME TO PREVENT A COLLISION.

Slide #30

WHAT COULD THIS BE? (PAUSE).

Slide #31

A BOAT AT ANCHOR DOES NOT DISPLAY RUNNING LIGHTS, ONLY THE WHITE ANCHOR LIGHT WHICH WAS MENTIONED EARLIER.....

Slide #32

MANY TYPES OF LIGHTS ARE USED ON SPECIAL VESSELS SUCH AS DREDGES, CABLE TENDERS, AND SUBMARINES.... THE COMPETENT SEAMAN WILL REVIEW THESE OCCASIONALLY AND SHOULD REMEMBER ONE BASIC IDEA... IF YOU DON'T KNOW WHAT IT IS, GIVE IT PLENTY OF CLEARANCE AND PROCEED WITH CAUTION.

Slide #33

NOW FOR A QUICK REVIEW... REMEMBER THIS ONE? WHO HAS THE RIGHT-OF-WAY? (PAUSE)....

Slide #34

RIGHT TO LEFT CROSSING OF A CLASS 2 BOAT.... THE OBSERVED BOAT HAS THE RIGHT-OF-WAY.

Slide #35

AND THIS ONE? (PAUSE)...

Slide #36

LEFT TO RIGHT CROSSING OF A SAILBOAT UNDER SAIL WITHOUT AUXILIARY POWER... NORMALLY, THE SITUATION WOULD BE THAT THE PORT BOAT FROM THE OBSERVER'S POSITION WOULD GIVE WAY TO THE APPROACHING BOAT BUT SINCE IT IS A SAILBOAT UNDER SAIL, IT HAS THE RIGHT-OF-WAY....

Slide #37

HOW ABOUT THIS ONE? (PAUSE)....

Slide #38

AN INLAND TUG PUSHING BARGES...

Slide #39

THE RULES OF THE ROAD ARE BY STATUTE, FEDERAL AND STATE LAWS.... THEY MUST BE OBEYED JUST AS VIGOROUSLY AS AUTOMOBILE TRAFFIC LAWS ON SHORE....

Slide #40

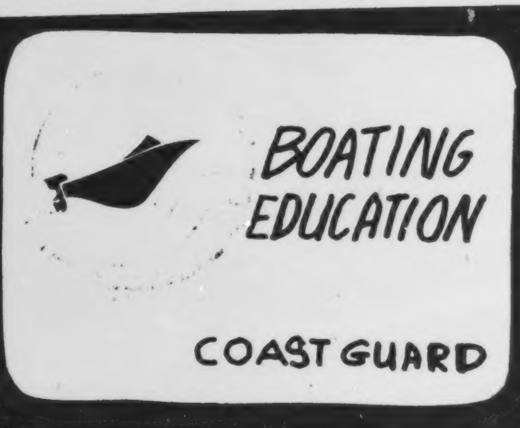
AT TIMES OF EXTREME DANGER YOUR ALTERNATIVE TO THESE LAWS IS TO AVOID AN ACCIDENT, NO MATTER WHAT....

Slide #41

THERE ARE CIVIL AND CRIMINAL PENALTIES FOR NON-COMPLIANCE...

Slide #42

REMEMBER WHEN YOU ARE IN YOUR BOAT ON THE WATER, OTHER BOATERS ASSUME YOU KNOW WHAT YOU'RE DOING: SO YOU ARE OBLIGATED TO KNOW ABOUT IDENTIFICATION OF NAVIGATION LIGHTS AND ABOUT USE OF YOUR OWN NAVIGATION LIGHTS....



1.
1st Anncr: THE UNITED STATES COAST GUARD ....

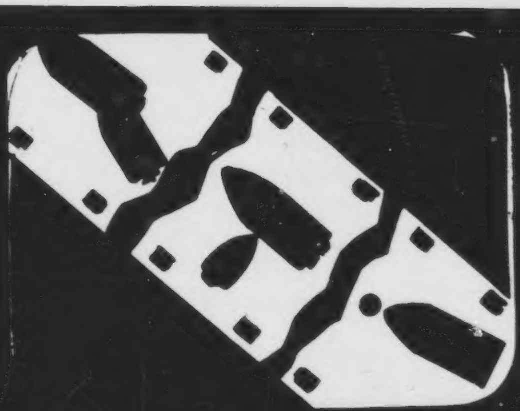
Wyle Laboratories, Inc
and
Arbus Films

2
1st Anncr: IN COOPERATION WITH WYLE LABORATORIES AND ARBUS FILMS PRESENTS ....

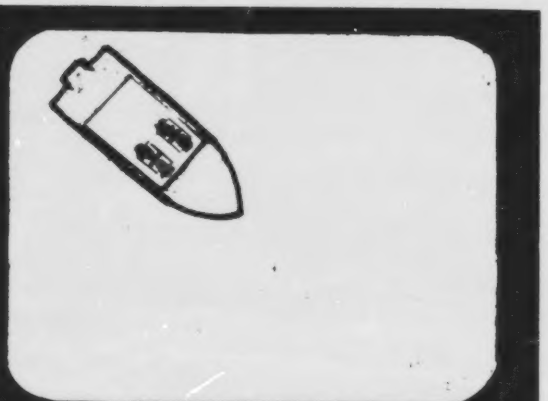
THREE COLLISION REPORTS

(OPERATOR INATTENTIVENESS)

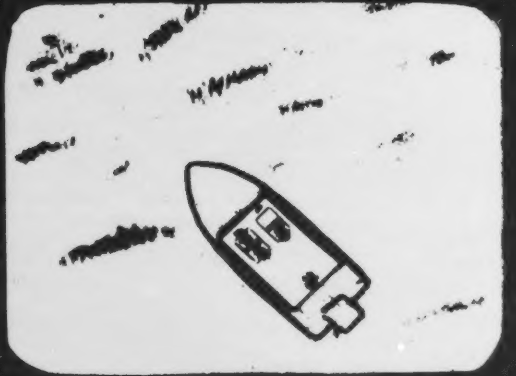
3.
"VISUAL ONLY"



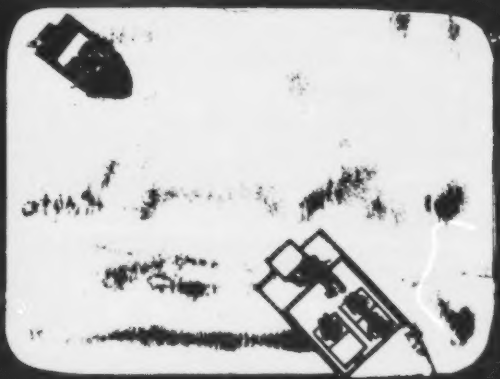
4.
2nd Anncr: THIS FILM WAS PRODUCED TO BRING TO THE BOATING PUBLIC'S ATTENTION THE IMPORTANCE OF BECOMING A MORE ALERT BOATER. THIS MEANS YOU SHOULD BE CONSCIOUS OF YOUR BOAT'S POSITION RELATIVE TO THE SHORE, THE COURSE OF OTHER NEARBY BOATS AND HOW FAST ARE YOU MOVING. EACH ACCIDENT WILL BE ILLUSTRATED BY MOVING MODEL BOATS AS A RE-ENACTMENT, AND COMMENTS WILL BE GIVEN AS TO PROBABLE CAUSES.



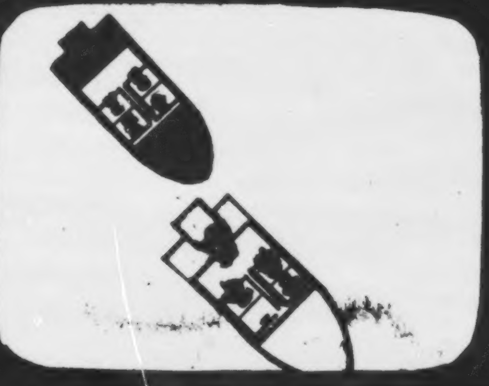
5.
2nd Anncr: BOAT "B", AN 18 FOOT OUTBOARD, WAS DEAD-IN-THE-WATER IN AN OPEN BAY WITH MOTOR TROUBLE. IT WAS 0900 ON A CLEAR MORNING WITH A ONE TO TWO FOOT CHOP ON THE BAY. BOAT "A", A 23 FOOT DEEP-V CABIN RUNABOUT, RAN INTO AND CAPSIZED THE 18 FOOT OUTBOARD BOAT. ONE PERSON DROWNED. DAMAGE WAS RELATIVELY MINOR.



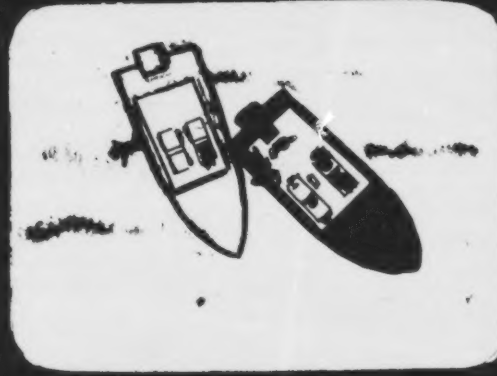
6.
2nd Anncr: THE "B" BOAT OWNER, HIS TWO SONS, AND A FRIEND WERE GOING FISHING. THEY LAUNCHED THE BOAT AND PROCEEDED ACROSS THE BAY. ALL OF A SUDDEN, THEIR OUTBOARD MOTOR QUIT RUNNING.



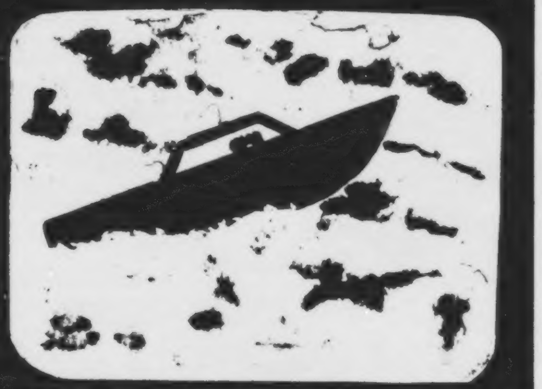
7.
2nd Anncr: AS THE OWNER PROCEEDED AFT TO TROUBLESHOOT THE OUTBOARD, HE NOTICED A BOAT IN THE DISTANCE HEADING HIS WAY. HE ASSUMED THAT THE BOAT WAS COMING TO LEND ASSISTANCE.



8.
2nd Anncr: ABOUT 3 TO 4 MINUTES LATER, ONE OF HIS SONS SCREAMED. HE LOOKED UP TO SEE THE BOW OF THE ONCOMING BOAT ABOUT 10 FEET FROM HIS TRANSOM.

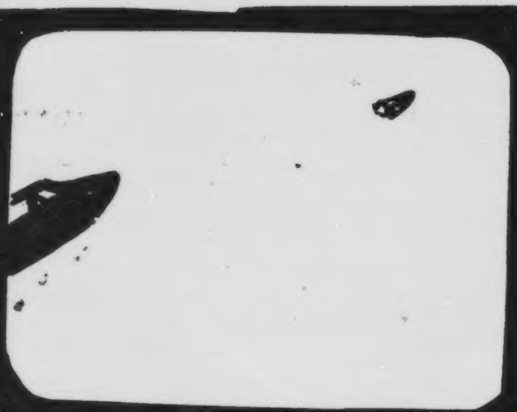


9.
2nd Anncr: HE QUICKLY STOOD UP TO TRY AND PUSH THE BOW OF THE ONCOMING BOAT AWAY FROM HIS OWN BOAT. AS THE ONRUSHING BOAT MOUNTED HIS TRANSOM, HE REACHED UP AND GRABBING WILDLY MANAGED TO HOLD ONTO THE RAIL OF THE SECOND BOAT. WHEN THE BOAT STOPPED, HE IMMEDIATELY REACHED OVER AND HELPED HIS SONS INTO THE SECOND BOAT. HIS FRIEND SEEMED TO BE TREADING WATER, BUT WHEN HE REACHED OUT, THE MAN SANK OUT OF SIGHT.

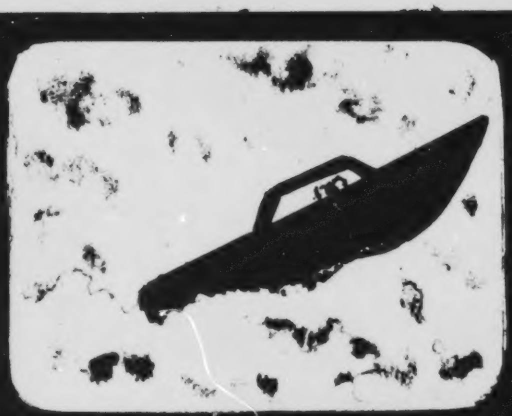


10.
2nd Anncr: AS REPORTED BY THE OWNER OF BOAT "A": THE OWNER, HIS WIFE, AND HER MOTHER AND FATHER WERE DEPARTING FOR A DAY OF FISHING. AS THEY APPROACHED THE OPEN BAY, THEY NOTICED THAT THE WIND HAD CREATED A CHOP. SINCE SOME OF THE OCCUPANTS WERE SOMEWHAT FEARFUL OF THE POUNDING, THE OWNER/OPERATOR SLOWED THE BOAT DOWN UNTIL THE POUNDING STOPPED.

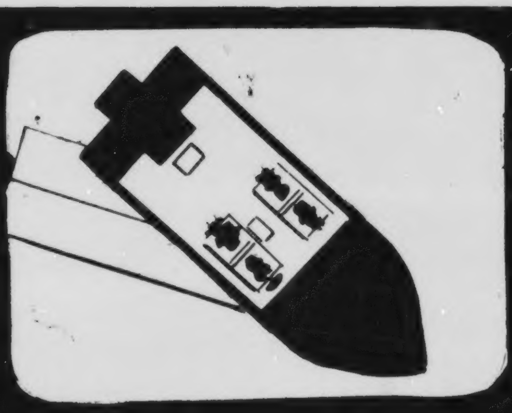
APPENDIX O-5. STORYBOARD FOR
16 MM FILM ON COLLISION ACCIDENTS



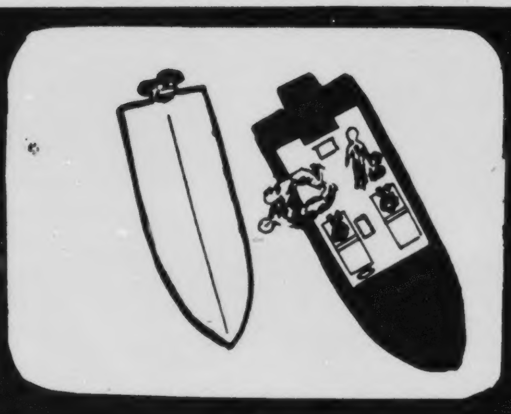
11.
2nd Anncr: AT THAT POINT, THEY NOTICED THE 18 FOOT OUTBOARD RUNABOUT SPEEDING PAST THEM ON THEIR STARBOARD SIDE. THE OUTBOARD APPEARED TO BEAR OFF TO THE RIGHT AND HEAD ON DOWN THE BAY.



12.
2nd Anncr: THE OWNER SCANNED THE AREA FORWARD OF THE BOAT AND TURNED TO TALK TO HIS WIFE. AFTER ONLY A FEW SECONDS, THE BOAT SLAMMED INTO SOMETHING. THE BOW WENT STRAIGHT UP. THE OWNER SAID HE WAS FEARFUL THAT THE BOAT WAS GOING TO COME DOWN STERN FIRST AND FILL WITH WATER. HE ALSO SAID THAT HE THOUGHT THE BOAT SPUN AROUND A COUPLE OF TIMES WHILE IN THE AIR.



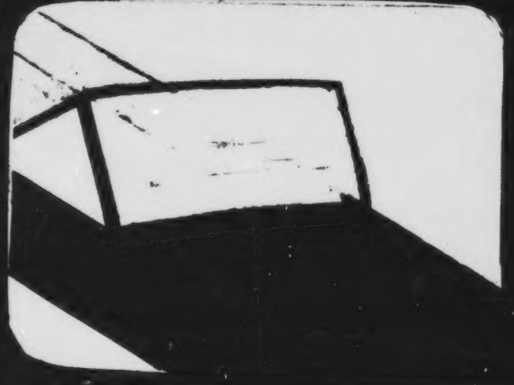
13.
2nd Anncr: HE GRABBED THE THROTTLE AND KILLED THE IGNITION IMMEDIATELY. JUST AT THAT POINT, A MAN JUMPED INTO THE COCKPIT, AND THE OWNER SAW A BOAT COME OUT FROM UNDER HIS AND ROLL OVER. HIS WIFE REACHED FOR THE LIFE PRESERVERS, AND HE AND HIS WIFE RUSHED TO THE BACK OF THE BOAT.



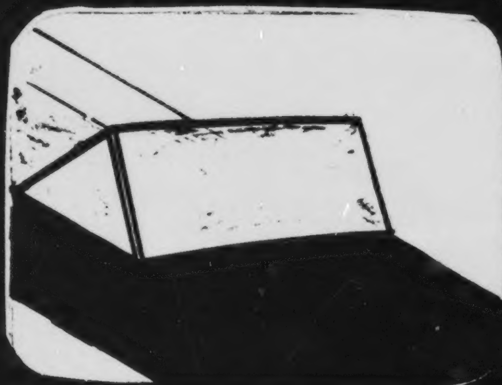
14.
2nd Anncr: THE MAN PULLED ONE BOY ONBOARD, THEN ANOTHER BOY. BOTH SEEMED TO BE UNHURT. ANOTHER MAN POPPED TO THE SURFACE ABOUT 8 FEET BEHIND THE BOAT. THE OWNER AND THE MAN REACHED OUT TO PULL HIM IN. THE TWO OTHER MEN WERE GRASPING EACH OTHERS' HANDS WHEN, FOR SOME REASON, THEY LET GO; AND THE MAN IN THE WATER SANK OUT OF SIGHT.

15.
2nd Anncr: TO CONTINUE OUR DISCUSSION OF THIS ACCIDENT, I WOULD LIKE TO INTRODUCE CAPTAIN W. D. JONES, U.S. COAST GUARD, CHIEF, MARINE SAFETY TECHNOLOGY DIVISION (OR OTHER SUITABLE TITLE), WASHINGTON, D.C. HE WILL COMMENT ON CAUSES AND IMPLICATIONS OF THIS ACCIDENT.

16.
Capt: THE OPERATOR OF THE 23 FOOT BOAT HAD A VISIBILITY PROBLEM. HE WAS HEADING INTO A CHOP THAT WAS BAD ENOUGH THAT ONE OF HIS PASSENGERS REQUESTED THAT HE SLOW DOWN TO REDUCE THE POUNDING. WITH THAT MUCH CHOP, COMING AT HIS STARBOARD FORWARD QUARTER, THERE HAD TO BE SPRAY ON THE WINDSHIELD.



17.
Capt: THE WINDSHIELD ITSELF WAS A THREE PIECE UNIT WITH THE LARGEST SECTION IN THE MIDDLE. THIS RESULTED IN A FAIRLY SMALL PANE OF GLASS IN FRONT OF THE OPERATOR, SURROUNDED BY ALUMINUM WINDOW FRAME EXTRUSIONS. THE GLASS WAS A DARK GRAY TINT, AND THE WINDSHIELD WAS PURPOSELY CUT LOW FOR STYLE. THE CANVAS TOP OF THE WINDOW EXTRUDED AND EXTENDED AFT FAIRLY FLAT, AGAIN, PROBABLY FOR REASONS OF AESTHETICS.



18.
Capt: IN ADDITION, THE BOAT WAS HEADING SOUTHEAST INTO THE MORNING SUN. THE REFLECTIONS OFF THE WATER, FORWARD DECK, AND WINDSHIELD HAD TO HAVE A DETRIMENTAL EFFECT ON VISIBILITY.

VISUAL IS SAME AS
SCENE 16, SET #1

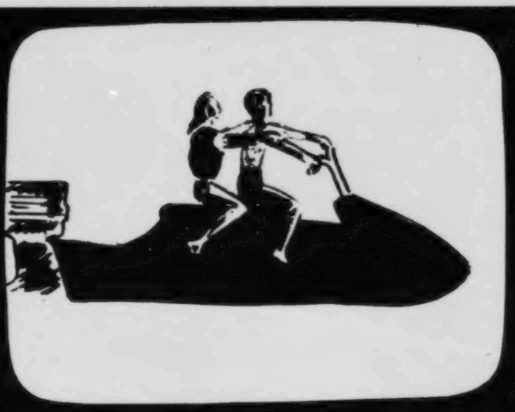
19.
Capt: ALL OF THIS ADDS UP TO THE SITUATION WHERE AN OPERATOR WAS DRIVING A BOAT AT LESS THAN PLANING SPEED, WHICH RESULTED IN THE BOW BEING HIGH IN THE AIR. HE HAD TO LOOK INTO THE SUN THROUGH A SMALL, DARK TINTED, SALT WATER SPRAYED WINDSHIELD AT THE CHOPPY WATER AREA AHEAD.

VISUAL IS SAME AS
SCENE 16, SET #1

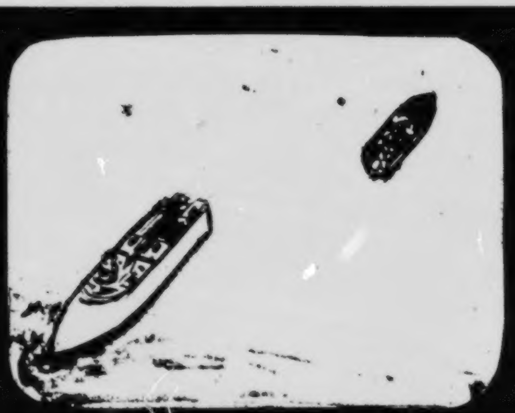
20.
Capt: THIS BOAT OPERATOR HAD A BAD HABIT OF SCANNING THE WATER AHEAD AND THEN TURNING TO CONVERSE WITH HIS PASSENGERS. COMPENSATION FOR REDUCED VISIBILITY AND COMPLETE ATTENTION TO WATER CONDITIONS AHEAD COULD HAVE PREVENTED THIS ACCIDENT.

VISUAL IS SAME AS
SCENE 16, SET #1

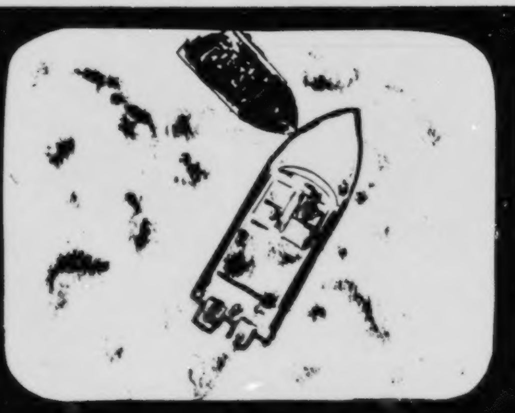
21.
Capt: HERE WE HAVE A SITUATION WHEREIN PART OF THE PROBLEM WAS OPERATOR INATTENTION, AND PART OF THE PROBLEM WAS DESIGNED INTO THE BOAT.



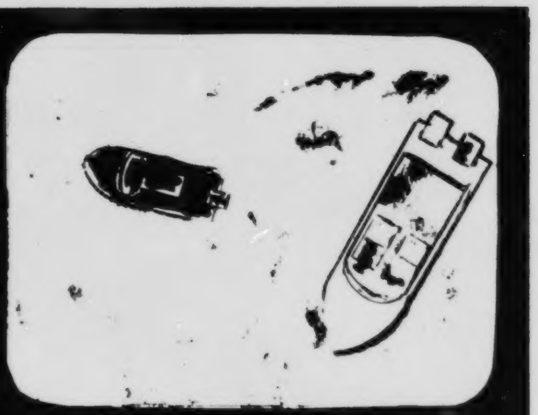
22.
2nd Anncr: THE SECOND COLLISION ACCIDENT INVOLVES A 16 FOOT RUNABOUT AND A 7 FOOT WATER SCOOTER TYPE PLEASURE VEHICLE. THIS ACCIDENT RESULTED IN THE DEATH OF ONE OF THE TWO PEOPLE ABOARD THE SCOOTER. FIVE ADULTS GATHERED ON A SANDY RIVER BEACH AREA FOR A PICNIC AND PLEASURE BOAT OUTING. DURING THE LONG AFTERNOON THEY CONSUMED 3/4THS OF A BOTTLE OF BOURBON. AT APPROXIMATELY 2030, THE LAST THREE DECIDED TO LEAVE. A MALE AND A FEMALE BOARDED THE SCOOTER WITH THE MALE SEATED IN THE OPERATOR'S POSITION AND WERE HEADED BACK TO THE LAUNCH RAMP.



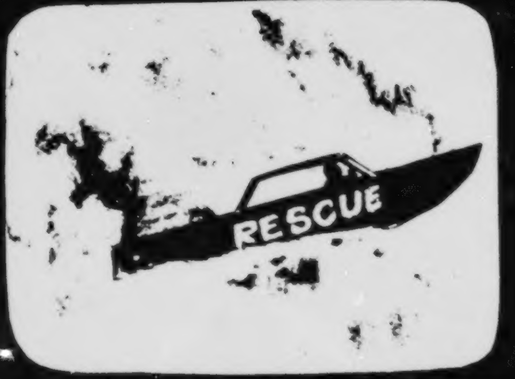
23.
2nd Anncr: THE FINAL PERSON BOARDED HIS BOAT AND GOT UNDERWAY SHORTLY THEREAFTER. HE WAS HEADED BACK TO THE LAUNCH RAMP ALSO.



24.
2nd Anncr: AS THE RUNABOUT WAS PASSING, THE WATER SCOOTER APPARENTLY TURNED AND A COLLISION OCCURRED. THE WATER SCOOTER WAS NOT EQUIPPED WITH RUNNING LIGHTS.



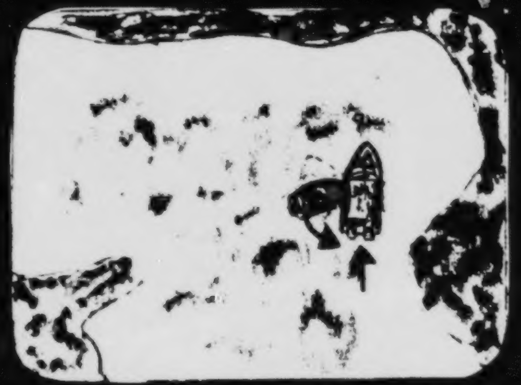
25.
2nd Anncr: THE OPERATOR OF THE SCOOTER AND PASSENGER WERE THROWN OFF. THE OWNER OF THE RUNABOUT, REALIZING A COLLISION HAD OCCURRED, TURNED AROUND AND FOUND THE SCOOTER GOING AROUND IN CIRCLES. HE LOCATED THE FEMALE PASSENGER FLOATING WITH AN AK-1 PFD. THE OPERATOR COULD NOT BE FOUND. THE RUNABOUT OWNER TOOK THE PASSENGER ABOARD AND RETURNED TO THE LAUNCH RAMP FOR HELP.



26.
2nd Anncr: THE BODY OF THE OPERATOR OF THE WATER SCOOTER WAS RECOVERED BY RESCUE SQUADS AT APPROXIMATELY 1320, THE FOLLOWING DAY.

VISUAL IS SAME AS
SCENE 15, SET #1

27.
2nd Anncr: NOW, CAPTAIN, WOULD YOU REVIEW THE PROBABLE CAUSE OF THIS ACCIDENT?
Capt: OPERATING THE WATER SCOOTER IN NEAR DARKNESS WITHOUT LIGHTS IS CERTAINLY A MAJOR CAUSE. THE OPERATOR OF THE 16 FOOT RUNABOUT KNEW THAT THE SCOOTER WAS AHEAD AND THAT HIS BOAT WAS FASTER, SO MORE CARE COULD HAVE BEEN GIVEN TO LOOKOUT. USE OF ALCOHOL BY THE OPERATOR OF THE SCOOTER MAY HAVE CAUSED HIM NOT TO LOOK BEHIND OR TO HAVE REACTED IMPROPERLY EVEN IF HE DID SEE THE OUTBOARD OVERTAKING HIM. HE MAY HAVE TURNED INTO THE PATH OF THE OUTBOARD. ALSO, SINCE THE OUTBOARD WAS "JUST GETTING ON PLANE," HIS HIGH TRIM ANGLE MAY HAVE MADE HIS RUNNING LIGHTS HARD TO SEE AND HIS FORWARD VISIBILITY OBSCURED.



28.
Capt: THE DAMAGE TO THE BOATS INDICATES THAT THE COLLISION OCCURRED ON THE PORT SIDE OF THE RUNABOUT AND THE STARBOARD SIDE OF THE SCOOTER. THE ANGLE OF IMPACT WAS PROBABLY NEARLY HEAD-ON FOR THE SCOOTER INTO THE SIDE OF THE RUNABOUT. THE SCOOTER HAD TO BE HEADING ACROSS THE RIVER AT AN UNUSUAL ANGLE. IN OTHER WORDS, THE SCOOTER RAN INTO THE RUNABOUT. ALSO, THE SCOOTER OPERATOR DID NOT GIVE WAY TO THE BOAT CROSSING FROM HIS STARBOARD SIDE.

VISUAL IS SAME AS
SCENE 16, SET #1

29.
Capt: AT THE POINT OF IMPACT, THE SCOOTER MUST HAVE BEEN GOING AT LEAST 20 MPH. THE FEMALE RIDING THE SCOOTER REPORTS, "WE HAD TO LEAN FORWARD TO GET ON PLANE." WITH TWO PEOPLE, THE SCOOTER WAS CAPABLE OF AT LEAST 25 MPH WITH THE 30 HP OUTBOARD AT FULL THROTTLE. THE RUNABOUT WAS PROBABLY AT A SPEED OF 18-26 MPH. HE WAS JUST GETTING ON PLANE. THE DISTANCE FROM THE SAND BAR WHERE THEY DEPARTED WOULD HAVE GIVEN HIM ABOUT 300 FEET OR SO TO PICK UP SPEED. THE IMPACT VELOCITY WAS PROBABLY QUITE HIGH 20-25 MPH, AS SEEN FROM THE DAMAGE TO THE SCOOTER.

VISUAL IS SAME AS
SCENE 16, SET #1

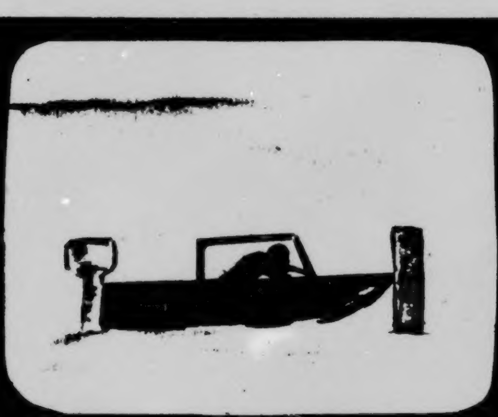
30.
Capt: UPON IMPACT, THE PASSENGER AND OPERATOR OF THE SCOOTER WERE THROWN TO THEIR RIGHT, COLLIDING WITH THE SIDE OF THE RUNABOUT. BRUISES TO THE RIGHT SIDE OF PASSENGER, SINCE THE COLLISION WAS ON SOME ANGLE, THE SCOOTER PROBABLY ROTATED (YAWED) TO THE LEFT (STERN SWUNG TO THE RIGHT). BOTH PEOPLE PROBABLY WENT OVERBOARD TO THE PORT SIDE OF THE SCOOTER. AT THIS POINT, THE RUNABOUT WAS OUT AHEAD OF THE SCOOTER, TWO PEOPLE WERE IN THE WATER; AND THE SCOOTER WAS GOING IN COUNTER-CLOCKWISE CIRCLES.

VISUAL IS SAME AS
SCENE 16, SET #1

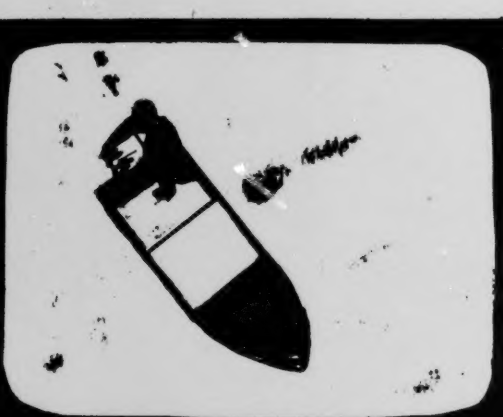
31.
Capt: SOME OF THE CAUSES CONTRIBUTING TO THIS ACCIDENT AND PERHAPS FACTORS THAT MIGHT HAVE SAVED THE VICTIM INCLUDE EQUIPPING THE SCOOTER WITH A DEAD-MAN THROTTLE, EQUIPPING THE RUNABOUT WITH A SPOTLIGHT TO INCREASE PROBABILITY OF SEEING OBJECTS IN THE WATER AND WEARING A PFD. THIS ACCIDENT IS A CLEAR CASE OF BOTH OPERATOR NEGLIGENCE AND OPERATOR INATTENTION.

VISUAL IS SAME AS
SCENE 15, SET #1

32.
2nd Anncr: AND NOW, CAPTAIN JONES, WE WOULD LIKE TO CONTINUE WITH THE LAST ACCIDENT. JUST BEFORE DAWN, TWO MEN WERE GOING DOWN A RIVER IN A RUNABOUT. THEY HIT AN UNLIGHTED BRIDGE TRESTLE SUPPORT TIMBER. ONE MAN SUSTAINED LIFELONG BRAIN DAMAGE.



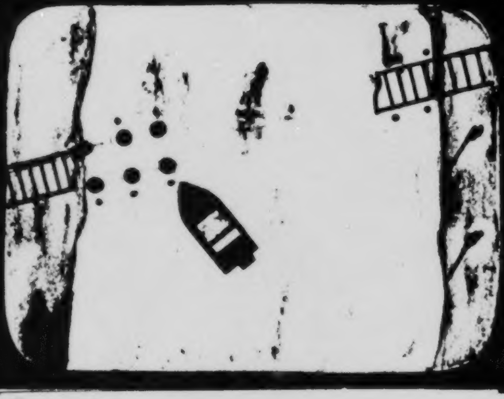
33.
2nd Anncr: THIS ACCIDENT INVOLVED ONE BOAT COLLIDING WITH A FIXED OBJECT. AT APPROXIMATELY 0535, MAY 1978, TWO MET SET OUT ON A FISHING TRIP IN A 16 FOOT OPEN FISHING TYPE BOAT. ACCORDING TO THE OPERATOR, THE MEN WERE TRAVELING DOWN STREAM. THE OPERATOR AND PASSENGER ALMOST SIMULTANEOUSLY SPOTTED A DARK OBJECT STRAIGHT AHEAD AND ONLY A FEW YARDS AWAY. THE OPERATOR SHIFTED THE MOTOR INTO REVERSE IN AN ATTEMPT TO STOP THE BOAT BEFORE HITTING THE OBJECT. THE COLLISION AVOIDANCE EFFORT ON THE PART OF THE OPERATOR WAS TOO LATE AND THE BOAT HIT THE OBJECT BOW ON.



34.
2nd Anncr: ON IMPACT, THE OPERATOR WAS THROWN FORWARD INTO THE STEERING CONSOLE AND THE PASSENGER WAS THROWN FORWARD INTO THE BENCH SEAT. THE OPERATOR WAS NOT INJURED, BUT THE PASSENGER RECEIVED SEVERE HEAD INJURIES. AFTER THE COLLISION, THE OPERATOR NOTED THAT WATER WAS COMING INTO THE FORWARD SECTION. HE MOVED TO THE STERN WHICH RAISED THE BOW SUFFICIENTLY TO STOP THE INGRESS OF WATER. AS A RESULT OF THE OPERATOR'S BODY COLLIDING WITH THE STEERING WHEEL AND KNOCKING IT ASKEW, THE STEERING CABLE HAD COME UNWOUND. THE OPERATOR THEN HAD TO MANEUVER THE BOAT BACK TO THE LAUNCHING AREA BY HOLDING ON TO THE MOTOR COVER AND STEERING WITH HIS HANDS.

VISUAL IS SAME AS
SCENE 15, SET #1

35.
2nd Anncr: IT WAS CLEAR AND CALM. THERE WERE STREET LIGHTS AND LIGHTING ON COMMERCIAL BUILDINGS ALONG THE WEST BANK OF THE RIVER. THERE WERE NO LIGHTS ALONG THE EAST SIDE OF THE RIVER. CAUTION LIGHTS WERE INSTALLED ON THE BRIDGE THAT WAS BEING DISMANTLED. ACCORDING TO THE OPERATOR, THE LIGHTS WERE NON-OPERATIVE AT THE TIME OF THE ACCIDENT. THE ACCIDENT OCCURRED APPROXIMATELY 40 MINUTES BEFORE OFFICIAL SUN RISE.



36.
2nd Anncr: IT WAS VERY DARK AND THE ONLY WAY THAT THE OPERATOR COULD KEEP HIMSELF ORIENTED WAS BY REFERENCE TO STREET LIGHTS AND LIGHTING ON COMMERCIAL BUILDINGS ON THE WEST BANK OF THE RIVER. THERE WERE NO LIGHTS ON THE EAST SIDE OF THE RIVER. THE RIVER MADE A GRADUAL BEND TO THE LEFT FROM THE BRIDGE SITE, MAKING LIGHTS ON THE WEST BANK VISIBLE WHEN LOOKING STRAIGHT DOWN THE RIVER CHANNEL TOWARD THE BRIDGE SITE. THE BRILLIANCE OF THESE LIGHTS AT A DISTANCE OF 1.5 MILES, HOWEVER, WAS NOT SUFFICIENT TO SILHOUETTE AN OBSTRUCTION IN THE RIVER CHANNEL.

VISUAL IS SAME AS
SCENE 16, SET #1

37.
2nd Anncr: CAPTAIN COULD WE HAVE YOUR COMMENTS ON THIS SITUATION?
Capt: CERTAINLY. THIS SEEMINGLY AVOIDABLE ACCIDENT HAS SEVERAL INTERESTING FACETS THAT WE IN THE COAST GUARD HAVE TO CONTEND WITH IN TRYING TO EDUCATE THE BOATING PUBLIC. FIRST, THE AMOUNT OF DAMAGE CAUSED BY THIS ACCIDENT COULD NOT HAVE TAKEN PLACE AT THE SLOW SPEED THE OPERATOR CLAIMS HE WAS DOING. THE PERMANENT BRAIN DAMAGE COULD NOT HAVE HAPPENED AT THE QUOTED SPEED. DR. C. M. TYLER, JR. OF THE STRUCTURAL ANALYSIS GROUP OF WYLE LABORATORIES, HUNTSVILLE, ALABAMA HAS ANALYZED THE WEIGHT OF THE BOAT AND OTHER FACTORS LISTED, AND HE ESTIMATES THE BOAT SPEED AT NO SLOWER THAN 18 MPH OR FASTER THAN 37 MPH.

VISUAL IS SAME AS
SCENE 16, SET #1

38.
Capt: WE FEEL THAT THIS ACCIDENT WAS MITIGATED BY DARKNESS, HIGH SPEED AND OPERATOR INATTENTION. NOW IN CONCLUSION, THESE 3 CASES SHOW WHAT CAN HAPPEN AS A RESULT OF OPERATOR INATTENTION. TWO DROWNINGS AND ONE PERMANENT BRAIN INJURY VICTIM. ALCOHOL, SPEED AND INATTENTION WILL PROBABLY LEAD TO AN ACCIDENT LEARN GOOD OPERATING PROCEDURES AND THEN PRACTICE THEM. ALWAYS BE ALERT.

CHECKLIST:

[] ____________

39.
2nd Anncr: HERE IS YOUR "ALERTNESS CHECK LIST."
[ ] BE AWARE OF DISTRACTIONS
[ ] BE AWARE OF YOUR TOTAL BOATING ENVIRONMENT
[ ] KNOW THE DESIGN LIMITATIONS OF YOUR BOAT
[ ] BE ATTENTIVE TO OTHER ACTIVITIES IN THE AREA
[ ] VISUALLY SCAN THE AREA AHEAD

40.
2nd Anncr: YOU'RE OBLIGATED TO KNOW, YOU KNOW.

ARE YOU ON THE LEVEL?

SMALL BOAT STABILITY

Do I Need This Booklet?

This booklet is intended for you the boater who are just beginning to enjoy recreational boating. The facts in this booklet are selected to suggest ways for dealing with loading and operating small boats.

Here is what you will find inside:

- why your boat is stable or not stable,
- what factors affect "rolling" of a boat,
- what are some tricks for loading your boat so that it is as seaworthy as possible,
- how to determine "freeboard" of your boat and how freeboat is affected by load and water conditions,
- some things to consider about stability while operating your boat.

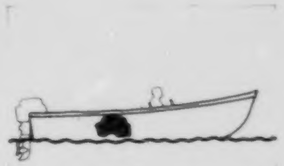
You may find it more convenient to begin by reading through a list of words and their definitions at the back of this booklet. These words are used all through the booklet and may have their own meaning when used in boating.

What Do You Mean by Boat Stability?

A boat's stability is equated with balance. It is affected by boat size and type of hull, by the distribution of load the boat will carry, by trim and motion of the boat, and by movements of persons within the boat.

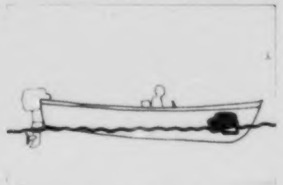
Some of the movements which will affect your boat's stability are standing, casting while fishing, and moving from one position to another in the boat. While you can move fairly freely on larger boats, movement around small boats must involve thinking on everyone's part. Many small boats will capsize (turn over) without adequate warning.

- **Remember, all movements by persons should be made slowly with the intent of keeping the boat in balance. It is important to keep the boat in balance fore and aft as well as side to side to maintain the most stability possible.**

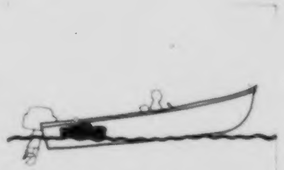


This boat is trimmed and in a balanced position.

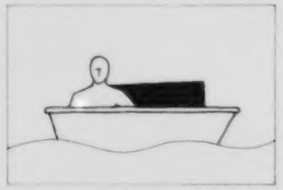
Here is how the small boat is affected by loading of equipment or persons.



This boat is "down by the bow," and is more easily capsized when the operator turns either left or right.

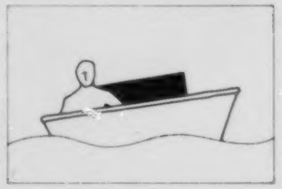


This boat is "down by the stern." Water can more easily enter from the stern and swamp (flood) the boat. Operator visibility is lowered.



Trimmed

This boat is trimmed and in a balanced position.



Untrimmed

This boat is off balance "heeled to starboard."

What Factors Affect Roll Stability of a Boat?

Roll is one of several natural motions of a boat. It is the side to side rotation of the boat in the water and varies considerably for different types of hulls.

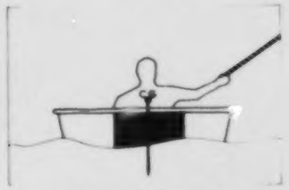
The rolling of a boat results from two natural forces acting on the boat: buoyancy and gravity. It is the combination of these forces that causes the boat to roll.

Buoyance is the upward force that allows the boat to float. Gravity is the downward force that keeps the boat in the water.

A boat can be made more stable by keeping the load and persons down low inside the boat. This has the effect of lowering the center of gravity.

The center of gravity is a point where the weight of the boat and the weight of everything on board could be placed to produce the same effect on stability as if the weight were distributed throughout the boat. Both horizontal and vertical distribution of weight in the boat help establish the center of gravity.

Roll stability is greatly affected by the height of the center of gravity so it is important to know where this is with respect to the boat, water conditions, load, and passengers.

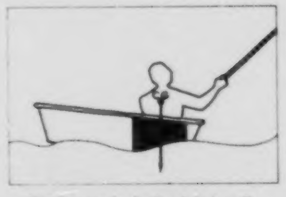


Weight low and evenly distributed.

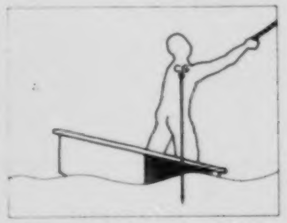
CG (Center of Gravity) is low – amount of roll will be less and rate of roll will be slower.

Placing weight to one side of the center line of a boat (or shifting the weight horizontally) will make the boat roll to one side. Increasing the height of the center of gravity such as standing (or shifting the weight vertically) will also cause the boat to roll and become less stable.

- Remember, any movement can affect your boat's stability, so move about slowly and carefully in the boat.



Weight unevenly distributed horizontally. (CG too far to one side of center)

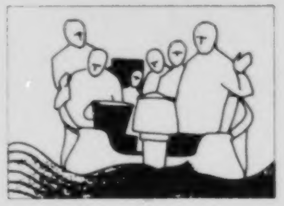


Weight distributed too high vertically. (CG too high above boat - rate of roll will be faster and less controlled)

How Do I Load My Boat So That It Is Trimmed and Stable?

Loading and capacity primarily refer to the weight of persons, fuel, gear, etc., that can be carried safely.

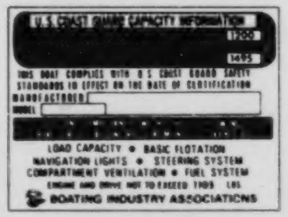
The number of seats in a boat is *not* an indication of the number of persons it can carry safely. The number of people a boat can safely carry depends on such characteristics as the hull volume, and the size of the boat. Normally, seating is designed to provide a variety of seating positions.



This boat is overloaded for its size.

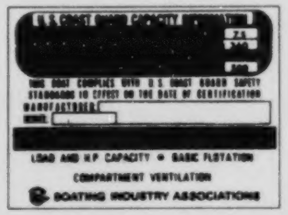
Overloading beyond hull capacity will cause the boat to sit lower in the water which will have an effect of unpredictability on stability. The boat low in the water also increases the danger of even small waves and wakes coming in over the sides or over the stern.

Boats under 20 feet in length with a few exceptions must now display a U.S. Coast Guard capacity plate which states the total weight and weight of persons that can be safely carried on board.



U.S. COAST GUARD CAPACITY INFORMATION
1200
1495
THIS BOAT COMPLIES WITH U.S. COAST GUARD SAFETY STANDARDS IN EFFECT ON THE DATE OF CERTIFICATION
MANUFACTURED
MODEL
LOAD CAPACITY • BASIC FLOTATION
NAVIGATION LIGHTS • STEERING SYSTEM
COMPARTMENT VENTILATION • FUEL SYSTEM
ENGINE AND DRIVE NOT TO EXCEED 1105 LBS
BOATING INDUSTRY ASSOCIATIONS

Capacity plate for inboards, etc.



U.S. COAST GUARD CAPACITY INFORMATION
THIS BOAT COMPLIES WITH U.S. COAST GUARD SAFETY STANDARDS IN EFFECT ON THE DATE OF CERTIFICATION
MANUFACTURED
MODEL
LOAD AND H.P CAPACITY • BASIC FLOTATION
COMPARTMENT VENTILATION
BOATING INDUSTRY ASSOCIATIONS

Capacity plate for outboards.

If a capacity plate is not displayed in your boat, a rough estimate for determining the number of persons you can safely carry in good weather conditions is obtained by multiplying the overall length of the boat (L) by the maximum width of the boat (W) and dividing by 15. If the answer is a whole number and a fraction, round it down to the nearest whole number.

For example, if your boat is 18 feet long and five-and-a-half feet wide, in good weather and water conditions, you could safely carry six people weighing an average of 150 pounds each.

$$\frac{L \times W}{15} = \frac{18 \times 5.5}{15} = 6.6 = 6 \text{ persons}$$

Remember, this number is determined assuming that the engine is of the recommended size, that there is a normal amount of fuel aboard, and normal amounts of equipment and supplies on board. For rough weather conditions, it is important to carry considerably less than the maximum allowable weight.

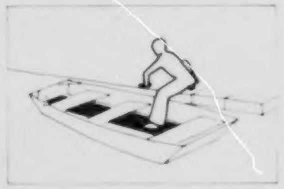
When actually loading your boat, there are several things to keep in mind. First, when arranging the equipment and gear within the boat, try to keep an aisle clear down the center so that you won't have to step near the sides of the boat when moving from one position to another.

Be sure that the equipment which is not needed for the moment is stowed out of the way to make as much clear space as possible.

Remember to keep PFDs (Personal Flotation Devices) and a fire extinguisher readily accessible.

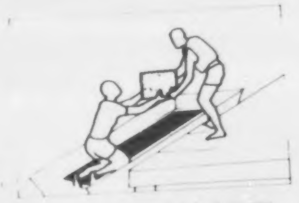
Also, fasten down your gear in order to prevent it from moving about during the ride. Many boats have been capsized when loose gear shifted and changed the center of gravity in the boat.

When getting in, remember to step as close to the center of a small boat as possible. Stay low in the boat and have someone on the dock hand gear to you to load after you are already in.



Stay low and step into the center of the boat.

APPENDIX 0-6. MODEL VERSION OF PAMPHLET AND ILLUSTRATIVE MATERIAL FOR LOADING RELATED EDUCATION



Have someone on the dock hand you your gear.

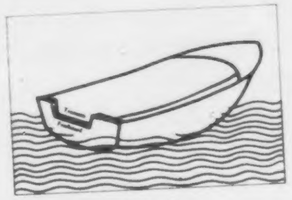
When all supplies and equipment have been loaded and secured, your passengers may board. Hold the boat steady for them and make sure they sit so that the boat is stable and balanced.

You might remind your passengers to remain seated. They should move only when you reduce your speed or stop. The forward motion of the boat does change its stability characteristics.

- **Remember, careful loading and the safety of the passengers is your responsibility.**

What Is Freeboard and How Can I Determine It?

Freeboard is the vertical distance from the waterline to the boat's lowest edge above the water where water can enter inside the boat. This is usually the position on the transom where the outboard motor is mounted.

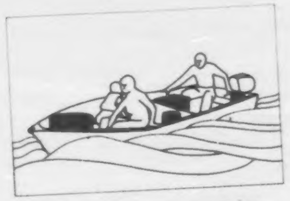


Freeboard

Tp maintain the boat's stability and maximum freeboard, you should always load your boat so that the weight is distributed evenly not only from fore and aft, but from side to side.

In loading your boat, you should consider how weight affects stability even though it is correctly distributed. Equally important is that the more weight you put into your boat the lower it will be in the water (the boat will have less freeboard.) That is, with more weight, there is less distance from the waterline to the lowest edge of the boat which will let water inside.

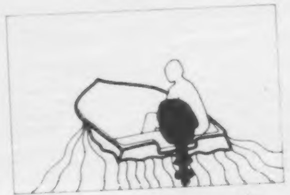
Many boats with low freeboard have swamped from waves or wakes and from persons suddenly moving to the back of the boat.



Overloading your boat will reduce its freeboard.

It is up to you to decide whether or not you should carry the full amount of recommended weight depending upon the weather and water conditions, etc.

Make sure you do not exceed the recommended size of outboard motor since too large a motor will reduce the freeboard and will create serious operating problems at high speed.



Too large a motor will reduce your freeboard.

You can see that low freeboard coupled with unfavorable weather and water conditions or wakes from passing boats could produce flooding of the boat.

After you have loaded your boat and all your passengers are aboard, a good practice is to check on your freeboard.

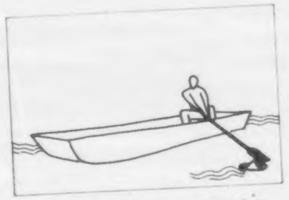
You should consider any necessary passenger or cargo movements since these, too, will affect your freeboard.

- **Remember, a boat with low freeboard is more easily swamped than a boat with higher freeboard.**

What Other Kinds of Things Might I Be Doing That Would Affect the Stability of My Boat?

Virtually any type of activity or movement in a boat, and particularly a small boat, will to some extent affect its stability. These movements include such things as moving from one position to another within the boat, fishing and hunting activities, anchoring activities, making adjustments to the outboard motor or emergency repairs, getting in and out of the boat, and recovering objects or persons from the water.

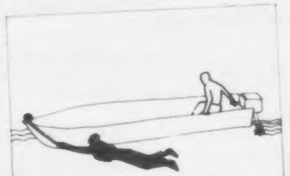
To recover any object from the water, bring the boat as close to the object as possible. Avoid leaning over the edge of the boat since this reduces its stability the same as unbalanced loading. If your weight is extended over the edge, your chances of going overboard as the boat rolls are likely.



Use a paddle to help recover objects from the water.

If you need to recover a person from the water, be especially careful considering the lowering of the freeboard and the balance of the boat. Freeboard may be less affected by pulling the victim in over the bow. Pulling a victim in over the side can easily swamp or capsize the boat.

Usually the most stable place for a victim to get aboard is the stern. But the stern also has the least freeboard and already bears the weight of an outboard motor. It is a matter of your judgement here. .You may find it safer for all persons concerned to leave the person in the water, especially if you are close to shore. Secure them to the forward part of the boat, and slowly tow them to shallow water. Always watch out for the propeller when a person is in the water near the boat.

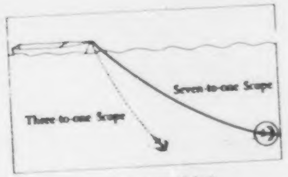


Tow the person from the front of the boat.

When anchoring, here are some things to consider. First, make certain that your anchor line is long enough to make the anchor fast (secure). If the line is too short, the anchor's holding power will be insufficient and the boat will drift. This is especially hazardous when anchoring overnight where no one is awake to watch if the anchor begins to drag.

Another very important aspect of line length is that when the limit of a short line is reached, the boat could suddenly capsize. This is especially important in rivers where the current is constantly exerting force on the anchor line.

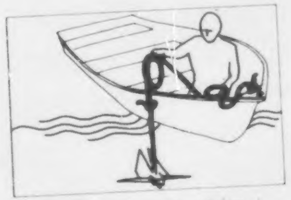
The safe ratio of anchor line-to-water depth, or scope, is seven-to-one. For example, if the water depth is 20 feet, then your line should be 140 feet.



Seven-to-one scope is best.

Remember, any weight or downward tug on the anchor can pull the boat down further into the water. A ratio of five-to-one may be adequate, but a ratio of three-to-one can be dangerous.

To anchor your boat, secure the line to some part of the boat at the forward end. Then, guide your boat slowly to the spot where you wish to anchor and, from the bow, carefully lower the anchor until it hits the bottom. Never throw or heave the anchor out of the boat.



Always lower the anchor from the bow.

Make sure the anchor digs in or sets. The line can then be played out with the boat running slowly in reverse until the length of line is about seven times the depth of the water. Recheck to see that the line is secure and shut off the motor.

Be prepared to cut the line in an emergency. Floating or submerged objects in the current can strike the anchor line and pull the bow lower in the water.

When recovering the anchor, the same hazards hold and you should exercise just as much caution. To free the anchor, always "run up" over it with the motor or oars. Never pull the boat up to the anchor using the anchor line. The anchor should be pulled up slowly from the bottom.

Where Can I Find Out More About Boat Operation?

This pamphlet has discussed a few of the questions you or your passengers may have had about boating. If you have other questions about the operation of your boat, contact a local United States Coast Guard Auxiliary flotilla or United States Power Squadron unit. They offer classes and they can make a lot of information available to you.

- **Remember, when you go out in a boat, your passengers and other boats are assuming that you're a boater. And that implies that you know things like rules of the road, what distress signals mean, and many other things not commonly found on land.**

Because if you're a boater
you're obligated to know, you know

Definitions

AFT - the rear area or stern of a boat. The transom of the boat (where the outboard motor is mounted) is usually the farthest aft part of the boat.

BOW - the forward end or front of a boat.

CAPACITY PLATE - a plate or label in a boat giving maximum weight capacity and maximum horsepower rating.

CAPSIZING - a turning over of the boat, resulting from a rolling motion.

CENTER OF GRAVITY (CG) - the hypothetical point where the total weight of the craft and everything aboard could be centered to produce the same effect on the hull as if the weight were evenly distributed.

FORE (or forward) - the front area of a boat. The bow is the foremost part of the boat.

FREEBOARD - the vertical distance from the water to the lowest part of the boat where water can enter inside the boat.

HULL - the main body of a boat. Some hull designs often used in small boats include flat bottom, round bottom, and semi-V hulls.

COAST GUARD

APPENDIX 0-7. SCRIPTS FOR RADIO SPOTS (30 SECONDS EACH)

(SFX: OUTBOARD MOTOR REVS UP ... DRIVES OFF INTO DISTANCE)

IF YOU'RE A BOATER, THIS SOUND IS MUSIC TO YOUR EARS. THIS SOUND SHOULD STRIKE TERROR IN YOUR HEART... (SFX: SOUNDS OF HEAVY WATER SLOSHING AND WOMEN AND CHILDREN'S SCREAMS, [FADE SFX])... WOULD YOU KNOW EXACTLY WHAT TO DO IN CASE YOUR BOAT CAPSIZES? IF NOT, BE SURE TO FAMILIARIZE YOURSELF AND EVERYONE THAT RIDES IN YOUR BOAT WITH SAFETY PROCEDURES TO FOLLOW IN CASE YOUR BOAT SWAMPS OR CAPSIZES. ALWAYS STAY WITH YOUR OVERTURNED BOAT AND DON'T PANIC. FOR MORE INFORMATION ON BOATING, CONTACT THE COAST GUARD AT 1-800-594-6000.

(SFX: SOUND OF MOTORBOAT... WATER SLOSHING [SLOW FADE OF SFX])

IF YOU'RE A BOATER, YOU KNOW HOW MUCH FUN IT IS TO GO BOATING. NO DOUBT YOU'VE HAD A FEW MINOR INCIDENTS ON THE WATER THAT COULD HAVE BEEN SERIOUS. YOUR QUICK THINKING PROBABLY SAVED THE DAY. A REMINDER FROM THE U.S. COAST GUARD TO KEEP YOUR GUARD UP ALWAYS. NEVER ALLOW TOO MUCH NOISE, TOO MUCH SUN, TOO MUCH FUN, OR TOO MUCH ALCOHOL TO WEAKEN YOUR SENSES. WHEN YOU'RE IN YOUR BOAT OR IN THE WATER, STAY ALERT AND STAY ALIVE. FOR MORE INFORMATION ABOUT BOATING, CALL YOUR U.S. COAST GUARD AT 1-800-594-6000.

APPENDIX O-8. SCRIPT PREPARED BY HUNTSVILLE POWER SQUADRON MEMBER J. BOWMAN FOR USE WITH SUPER 8 FILM IN POWER SQUADRON COURSE

REMEMBER THE TWO FISHERMEN AT DECATUR A COUPLE OF YEARS AGO... AND THE KID WHO DROWNED BELOW THE GUNTERSVILLE DAM? HERE ON THE TENNESSEE RIVER AND LAKES WE HAVE OUR SHARE OF CAPSIZING, SWAMPING ACCIDENTS.

DID YOU KNOW THAT NATIONALLY NEARLY A THOUSAND PEOPLE DIE EVERY YEAR AS A RESULT OF THESE TYPE ACCIDENTS?

DID YOU KNOW THAT EVEN THOUGH YOU ARE *MUCH* SAFER (AND MUCH MORE LIKELY TO SURVIVE) STAYING *WITH* YOUR BOAT MOST PEOPLE SWIM AWAY?

DID YOU KNOW THAT THIN, YOUNG, HEALTHY MALES ARE IN MORE DANGER IN COLD WATER THAN HEAVIER PEOPLE?

DID YOU KNOW THAT *MANY*, *MANY* PEOPLE DROWN TRYING TO SWIM ONLY A *FEW HUNDRED FEET* TO SHORE?

FINALLY, DID YOU KNOW THAT THE FEDERAL LAW DEMANDS THAT ALL BOATS UNDER 20 FEET IN LENGTH BE CERTIFIED TO FLOAT - EVEN WHEN *FILLED* WITH WATER AND THAT YOU ARE RESPONSIBLE FOR YOUR BOAT AND PASSENGERS' SAFETY?

EVERY BOAT OWNER SHOULD BE KEENLY AWARE OF THE FOLLOWING:

HOW FAR FROM SHORE HE IS APT TO BE WHERE HE BOATS.

HAVE A DEVELOPED MENTAL PLAN OF ACTION IN CASE OF SWAMPING OR CAPSIZING.

IMPLEMENT THAT PLAN IN SUCH AN EMERGENCY.

HERE ARE SOME THINGS TO REMEMBER:

IF YOU CAN'T SEE INDIVIDUAL LEAVES ON A TREE, IT IS PROBABLY TOO FAR TO SWIM.

UNLESS YOU ARE IN VERY COLD WATER, OR IT IS NIGHT, OR NO ONE CAN BE EXPECTED TO COME BY, YOU SHOULD NEVER TRY TO LEAVE YOUR BOAT.

IF YOU ARE IN THE WATER, USE YOUR PFD TO HELP KEEP WARM - *DON'T* MOVE ABOUT.

IF YOU MUST SWIM, TAKE YOUR TIME - YOUR STRENGTH CAN DISAPPEAR RAPIDLY. TAKE A FLOTATION DEVICE WITH YOU BY ALL MEANS.

KEEP A FLASHLIGHT OR FLARES AND A FLAG WITH YOU FOR SIGNALLING.

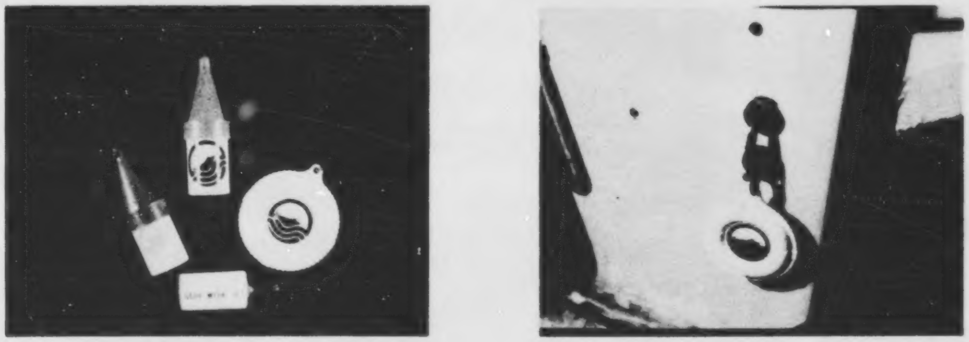
GAS TANKS, COOLERS, SEAT CUSHIONS - MOST ANYTHING (EXCEPT THE ANCHOR) WILL FLOAT - USE IT.

KEEP CALM, KEEP OTHERS CALM, STICK TO YOUR PLAN.

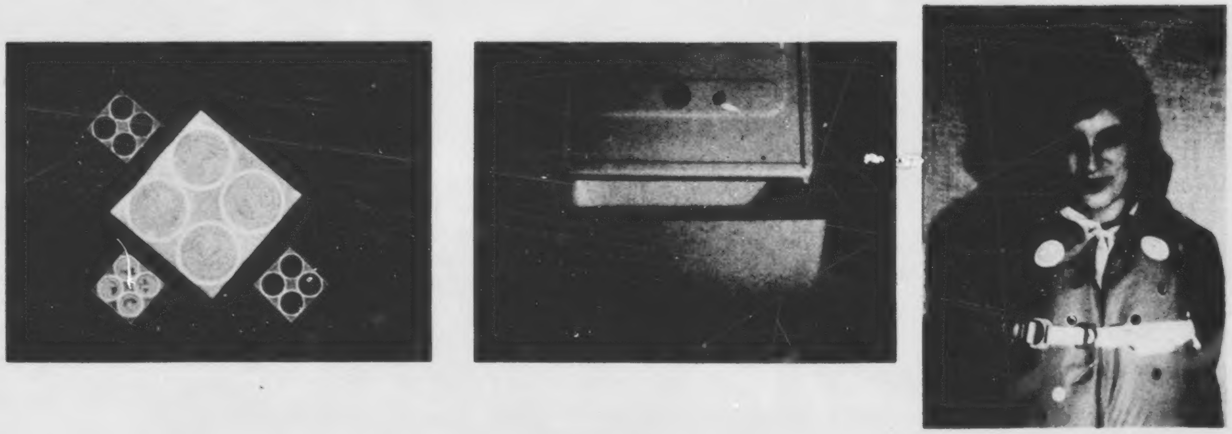
REMEMBER TOO, AS A BOAT OWNER YOU ARE OBLIGATED TO KNOW THESE THINGS.

APPENDIX 0-9. PHOTOS OF ADVERTISING SPECIALTIES FOR COLLISION AND LOADING RELATED ACCIDENT EDUCATION

Sample floating key chains for boat ignitions:



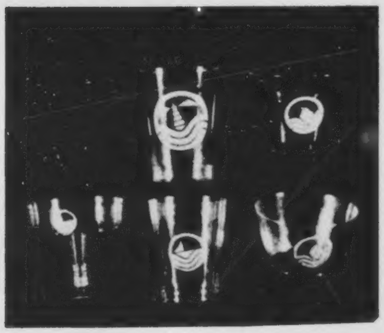
Sample of reflective stickers:

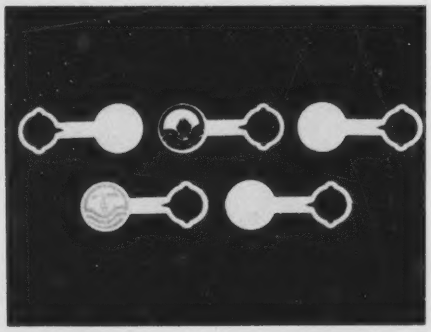


Samples of first aid kits and band-aid dispensers with educational logos:

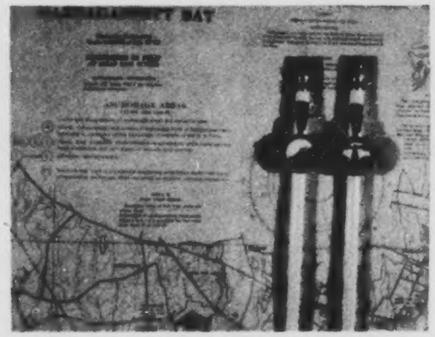
CURAD
CURAD

Sample beverage accessories with educational logos:





Sample pencil clip with educational logos:



APPENDIX 0-10. COPY FOR NEWSPAPER SUPPLEMENT INSERT

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
U.S. COAST GUARD
WASHINGTON, D.C. 20590
PHONE:

• 1 December 1977

Huntsville Times
P.O. Box 1487
Huntsville, AL 35807

Attn: Sports Editor

NOTE TO EDITOR

Over 50 million persons participated in recreational boating activities last year. In an effort to help boaters operate their craft more safely and enjoy the pleasures of boating the enclosed articles are being made available for use in your publication.

The features may be used in whole or in part since the subjects are designed for maximum versatility. Long articles may be cut and printed in sections beginning at each subhead. The Test Your Knowledge sections are programmed to obtain the highest number of correct responses whether used in conjunction with the stories or alone. Boating Tips are fillers of varying length.

We hope you find them informative and useful.

Sincerely,

John Doe
USCG Office of Boating Safety

JD/fo

(Definitions of load related terms - included to insure the reader's understanding of the terms used in the articles and as a means of reinforcing the concepts).

BOATING TIPS

Nautical terms can be confusing to the novice boater. Here's a short list of common boating terms to spice up your 'ol salt vocabulary.

ABOARD - On, in or into a boat.

AFLOAT - On the water.

AFT - Near the stern.

AGROUND - Touching bottom.

AMIDSHIP - Describing the midsection of a vessel, with reference to either length or width.

ANCHOR - A forging or casting shaped to grip the sea bottom and, by means of a cable or rope, hold a boat in a desired position.

ASTERN - Toward the stern.

BAIL (BALE) - To remove water from the boat by pump or bailer.

BEAM - A vessel's width amidship, imaginary line amidship at right angles to the keel.

BOW - The forward part or front of the boat.

CAPACITY RATING PLATE - Gives maximum weight, capacity and horsepower rating.

CAPSIZE - To turn over.

CENTER OF GRAVITY (CG) - The hypothetical point where the total weight of the craft and everything aboard could be centered to produce the same effect on the hull as if the weight were evenly distributed.

BOATING TIPS (continued)

DECK - Any permanent covering over a compartment, hull or any part thereof.

DINGHY - A small open boat.

DISPLACEMENT HULL - Type of hull that plows through the water even when more power is added.

DRAFT - The depth of the vessel below the waterline, measured vertically to the lowest part of the hull.

FORWARD - Toward the bow.

FREEBOARD - The vertical distance measured on a boat's side amidships from the water line to the gunwale (the lowest part of the boat where the water can enter inside the boat).

GUNWALE - The upper edge of the boat's side. (Pronounced gun-nel.)

HELM - The wheel or tiller by which a ship is steered.

HULL - The body of a boat.

KEEL - A permanently positioned, principal fore-and-aft backbone member of the boat's hull used for stability and ballast.

KNOT - A unit of speed equal to one nautical mile (6,076.10 feet) an hour.

LEE - The side opposite to that from which the wind blows.

LEEWARD - Situated on the side turned away from the wind. (Opposite of windward.)

LEEWAY - The amount a boat is carried leeward by the wind's force.

BOATING TIPS (continued)

LOADING - The placement and arrangement of supplies, people and gear aboard a boat.

MOORING - The anchor, charin, buoy, pennant, etcetera by which a boat is permanently anchored in one location.

MOTOR - A source of mechanical power.

MOTORBOAT - Any watercraft propelled by machinery, whether or not such machinery is the principal source of propulsion.

OAR - A long wooden instrument with a flat blade at one end, used for propelling boats.

PFD - Personal Flotation Device.

PITCH - The fore or aft movement as the bow and stern rise and fall due to wave action.

PLANING HULL - Type of hull that is shaped to glide easily across the water at high speeds.

PROPELLER - Piece of equipment connected to the lowest part of the drive shaft on all motors. It spins to move the boat.

ROLL - The sideward motion of the boat caused by wind and waves.

ROLL STABILITY - A balancing of side to side rotational motion of the boat in the water.

RUDDER - A device used for steering and maneuvering, usually flat sheet metal attached to a stern or rudder post - not necessary on outboards because the motor can be moved to change direction of thrust.

BOATING TIPS (concluded)

SCOPE - The length of anchor line. 7 to 1 scope means the length of anchor line from the boat to the anchor is seven times the water depth.

STERN - The back part of after end of a boat.

STOW - To pack cargo or equipment.

SWAMPING - Flooding the boat with water.

TILLER - A boar or handle for turning a boat's rudder or a outboard motor.

TRANSOM - The traverse planking which forms the afterend of a small square-ended boat. Outboard motors are usually attached to the transom.

TRIM - To arrange weight in a vessel in such a manner as to obtain the desired draft at bow and stern.

UNDERWAY - Vessel in motion, i.e., when not moored, at anchor or aground.

VESSEL - Every kind of watercraft, other than a seaplane on the water, used or capable of being used as a means of transportation on the water.

WAKE - Moving waves, track or path that a boat leaves behind when it is moving across the water.

WAY - Movement of a vessel through the water. Technically UNDERWAY. The common usage is interpreted as movement through the water: HEADWAY when going forward and STERNWAY when going backwards or astern.

YAW - The side-to-side deviation of a boat from its course caused by bad steering or heavy seas.

PERFORMANCE, POWER AND CAPACITY

Versatile Boats and Motors Provide Many Options for Buyer Consideration.

One of the first questions asked when the boat buyer begins his search is "Which boat is the right one for me?" Of the 341,000 outboard boats sold last year, the most popular was in the 14 foot range with a 40 horse motor. The popularity of a detachable lightweight motor on a trailerable boat is based on its versatility, dependability, relative low cost and operating simplicity.

When looking at the vast array of boats on the market, there are two basic performance types to consider: the planing hull and the displacement hull. The decision to further examine the various types of planing hulls which skim over the water's surface or the displacement hulls which plow through the water must be based upon the boat's ultimate use, individual preference, type of propulsion and of course, the cost.

Let's examine the characteristics of the six basic planing and displacement hull designs.

Flat bottom boats plane easily. Skiffs, johnboats, prams, deluxe houseboats, runabouts and hydroplanes are potentially very fast boats. But they are dangerous and very hard riding at high speeds in rough water. Continuous severe pounding could damage the hull unless speed is reduced to displacement speed. They are not as seaworthy as similiar size displacement hulls and should be used near shore in relatively smooth and protected waters.

V-bottom and deep-V hulls are also designed to plane at high speeds. They may be either planing or displacement hulls depending on the design of the bow section which may range from shallow, flared-V to a deep-V. In both instances, the V flattens out along the bottom which increases seaworthiness and improves the quality of the ride.

Round bottom boats, such as canoes, move easily at slow speeds. They have a tendency to roll unless there is a large flat area near the stern. Boats with round bottoms and displacment hulls are very seaworthy when properly handled under the conditions for which they were designed.

A catamaran hull is very stable twin-hulled design that can be either planing or displacement depending on the shape of the two hulls. Power boats usually have planing type bottoms and sailboats normally have displacement bottoms.

PERFORMANCE, POWER AND CAPACITY (continued)

The cathedral hull, a combination deep-V and catamaran, is very popular in many fiberglass cruisers. The twin tunnels along each side of the main kelp trap the spray when planing over waves and help cushion the ride.

Each different boat design has its own hull speed, that is, the safest speed at which that particular type of hull is designed to operate. In boats with displacement hulls, the hull speed is limited to 1.32 times the square root of the length of the waterline. Thus, a boat with a waterline length of 25 feet would have a hull speed of about 7 knots. (One knot is equal to the speed of one nautical mile - 6,076.10 feet - per hour.)

With displacement hulls, there is very little actual speed increase to be realized above the maximum hull speed, even when horsepower is increased. Adding extra horsepower only creates more drag, increases fuel consumption and makes the boat more difficult to control.

In comparison, conventional planing hulls are designed to perform at maximum efficiency when operating at high speeds. During peak performance, the wake spreads behind the boat with the thrust downward and outwards. Under low planing speeds, the excessive wake is evident by the water displaced along the sides of the boat.

There's another formula to estimate the approximate speed of boats with planing and semi-displacement hulls where only moderate horsepower is required to lift the hull out of the water as the speed increases. It's called the 30/30 rule:

1 HP will push 30 pounds, 30 mph
10 HP will push 300 pounds, 30 mph
100 HP will push 3000 pounds, 30 mph

Any change in weight equal to one tenth (1/10) the boat's total weight will change the speed 2 mph. For instance, if you added 300 pounds to the 3000 pound boat, the speed would drop to 38 mph. Conversely, if you removed 300 pounds from the 3000 pound boat, the speed would increase to 32 mph. When estimating speed, gross weight (weight of the hull, motor, passengers and equipment combined) should be used.

The 30/30 rule is good for calculating any speed of a planing hull between 20 and 40 mph. Below 20 mph, the hull assumes displacement characteristics and above 40 mph, it tends to "break-out" and assumes race boat characteristics as air is forced under the hull.

There is another way to estimate optimum speed using the propeller pitch method:

PERFORMANCE, POWER AND CAPACITY (continued)

Speed (mph) = Prop. pitch (inches)
- 1 - 25% (slip) for every thousand
propeller RPM

For example, if your propeller has a pitch of 17 inches, your boat's speed will be 17 minus one, or 16 less 25% (4) equals 12 mph for every thousand propeller RPM and 36 mph at 3000 propeller RPM.

The propeller pitch has one distressing disadvantage, you need to know the propeller RPM and not engine RPM as shown on the tachometer. If your dealer can tell you what the gear ratio is, you can calculate propeller RPM from engine RPM; e.g., in a 2:1 gear ratio the propeller will turn at one half the speed of the engine.

When a boat with a displacement hull moves faster than the water it displaces can return to fill the void, a powerful suction will cause the stern to ride low in the water. If the boat is overloaded, it will respond slugishly to rudder control and wave action. The inertia of the weight of the bow or stern will slow the boat's reaction to waves and water may be taken onboard.

To avoid overloading your boat or purchasing one that won't hold your family, here's how to estimate the safe weight load for a small craft. First, determine the length of your boat by measuring it from one end to the other in a straight line parallel to the centerline of the boat and the water's surface. The transom well is within the hull and should be included in the length measurement. Do not include anything such as an outboard motor or bowsprit which extends beyond the hull.

Then multiply the boat's length (in feet and tenths of feet) by the beam (width) and multiply the product by the minimum effective depth of 7.5.

$L \cdot B \cdot 7.5 = \text{Safe Load}$

The result of these calculations is the approximate number of pounds of gear and passengers the boat can safely carry under normal operating conditions.

Most boats under 20 feet have a capacity rating plate attached to the transom (that part of the stern which supports the motor) and located in full view of the operator's station. The rating plate information is very helpful when purchasing the proper size outboard motor to match a particular boat, since it gives maximum load and horsepower ratings. Do not exceed the manufacturer's recommendations, since the boat's performance and handling characteristics would be adversely affected. The ratings are based upon field testing of the equipment under normal operating conditions and calculations of the weight carrying capacity formula descirbed below.

If your boat doesn't have a capacity rating plate or if you want to estimate the load potential of a prospective purchase, here's a simple way to determine the maximum number of passengers the boat can safely carry.

Multiply the Length by the Beam (width) and divide by 15:

$\frac{L \cdot B}{15}$ = Number of passengers.

Using this formula, a boat 15 feet long and three feet wide could carry three persons safely. If your answer results in a fraction, adjust the passenger load to the next lowest whole person. Remember counting the number of seats in a boat does not indicate safe carrying capacity!

As with all formulas, this is merely a guide for the operator to apply to a particular loading situation. Weight distribution, operating conditions, boat design and the operator's experience must also be taken into account. Never overload your boat with passengers or gear. It is safer to make two trips than to make one dangerous trip that could result in disaster. The amount of time saved is not worth risking an accident.

342

BOARDING LIKE AN EXPERT: 18 TIPS TO MAKE YOU LOOK GOOD

The way you board your craft will show just how much you really know about boating. Here are a few boarding and equipment loading tips to make you and your crew look like experts.

- Before stepping aboard check all mooring lines to be sure they are secure and will hold the boat steady.
- If boarding from a dock or low pier, step aboard as near to the center as possible.
- Keep your hands free, make sure your footing is firm, bend low and grasp the gunwale for balance.
- If you have to load and attach an outboard motor, have someone hand it to you from the dock. Set it down on the stern floorboards and hook up the safety chain from the motor to the boat. Clamp the engine bracket down tight, then double check the safety chain to be sure it's tight and out of the way.
- Have extra gear handed to you and stow it safely out of the way.
- Maintain as much clear deck space as possible - remember the old saying;
  "A place for everything, and everything in its place."
- Arrange gear so that a center aisle along the keep is kept clear. That

way no one will have to step near the sides when changing positions.

- Tie down any heavy gear to prevent possible load shift when underway.
- Make sure all PFDs and fire extinguishers are readily accessible. The PFDs should be stowed within arms reach of everyone's seat if they aren't being worn.
- Once all the supplies and gear are stowed, steady the boat and help the other passengers climb on board.
- Don't let passengers jump or leap from the pier. Instruct them to transfer their weight smoothly while keeping their center of gravity as low as possible.
- Make sure passenger weight is balanced before casting off. Tell passengers to remain seated and to use caution if moving about while the boat is underway.
- Ask passengers to tell you if they want to change seats. This will help to maintain proper load balance and avoid the problem of several passengers trying to simultaneously move about unannounced.
- Passengers should remain seated while underway. Avoid all careless horseplay. Rocking, splashing, arms and legs dangling overboard, riding on decks and gunwales or even leaning over the bow could cause someone to fall overboard.

BOARDING LIKE AN EXPERT: 10 TIPS TO MAKE YOU LOOK GOOD (concluded)

- All passenger weight should be concentrated along the centerline, if possible. Try to evenly distribute weight so the boat is properly trimmed and balanced.
- Check the boat's freeboard when everyone is on board. Too much weight means too little freeboard and the possibility of water flooding over the transom and swamping the boat. NEVER OVERLAD THE BOAT!
- Make sure the maximum capacity requirements have not been exceeded. An overloaded boat is dangerous and in some states illegal.
- Before shifting positions, cut the motor to idle and have the passengers change seats, one at a time, moving low and using the gunwales for support. Everyone else should remain seated and watch, shifting their weight to counterbalance the weight change as needed.

Now that you know the right way to load and board, take a look around the dock and see how many "boaters" don't.

THE CENTER OF GRAVITY

How often have you told your passengers to sit down and stay seated while underway only to have them furl their brow and silently wonder why? Have you ever given much thought to what really causes a boat to tip over? Probably not, because most boaters believe it will never happen to them.

Here's the technical explanation so the next time someone asks you how a boat capsizes you can confidently explain the facts of floating to your landlubber friends.

Every boat has a center of gravity established by the vertical and horizontal distribution of the weight of its load. The boat's actual center of gravity is that point where the total weight mass of the craft and its load could hypothetically be centered in one spot, yet still produce the same effect on the hull. The stability of a boat is directly related to the hull shape beneath the waterline and to the height of the center of gravity. When the center of gravity shifts due to weight moving to another position, the hull's shape changes underwater and becomes less stable.

THE CENTER OF GRAVITY (concluded)

Thus, different types of hulls respond differently to load shift. All hulls will roll, that is they will rock from side to side, in direct response to changes in gravity and buoyancy. Gravity holds the boat down in the water and buoyancy pushes the boat up so it floats.

When the center of gravity is low, such as when everyone is seated and their weight is evenly distributed, the boat is fairly stable, and will not roll as much nor as often compared to when the center of gravity is raised high above the waterline. This happens everytime someone stands and changes positions. The center of gravity is higher, and since the boat is more unstable, it is more likely to roll. If the person standing were to shift his weight drastically or fall off balance, the rate of the roll would be faster and less controlled. The chance of the boat rolling and tipping, throwing the passenger overboard has greatly increased.

That's why you, as the skipper, should caution your passengers to remain seated while underway and stay low when changing positions.

TEST YOUR KNOWLEDGE

1. ____________________ hulls skim over the water's surface.
2. Round bottom canoes have ____________________ hulls which plow through the water.
3. A johnboat and an hydroplane both have planing hulls which make them dangerous at ____________________.
4. Adding extra horsepower to a boat with a displacement hull creates more drag, ____________________ fuel consumption and makes the boat hard to ____________________.
5. In comparison, a planing hull requires ____________________ horsepower to perform at maximum efficiency.
6. How would you calculate the approximate number of pounds a boat can safely carry? Hint:
   ____________________ · ____________________
   · ____________________ = Safe Load
7. If you wanted to know the maximum load and horsepower rating for a boat you would read the __________ __________ ususally found on the ____________________.
8. If your boat doesn't have a capacity rating plate on the transom, what formula would you use to determine the number of passengers it could safely carry?

TEST YOUR KNOWLEDGE (concluded)

9. If your boat is 12 feet long and has a five foot beam, how many passengers will it safely carry?

   Hint: $\frac{L \cdot B}{15} =$

10. Counting the number of seats in a boat ____________________ indicate safe carrying capacity.

TRIM YOUR BOAT AND YOUR FUEL BILL

If a quick check at the gas dock indicates your fuel consumption seems higher than normal, check your boat's trim -- it may need adjusting.

Trim is not the ornamentation or racing stripe design edging the bow. Trim means the arrangement of load weight in a way to obtain the desired draft at the bow and stern. For efficient performance, a boat's trim must be properly adjusted. The easiest way to understand how to correctly trim your boat is to experiment with load shifts.

Here's how. simply rearrange passengers and equipment until your boat can plane easily at its optimum speed. The bow will be raised just high enough not to block your view and the hull will skim lightly over the water's surface. By adjusting the load weight backwards and then forwards, or even shifting from side to side, you will be able to detect substantial differences in the ease and efficiency of your boat's performance. While experimenting, as when cruising, never exceed the capacity limitations of your craft.

Besides shifting the load factor, there are several other ways to adjust your boat's trim. First make certain the power package matches the manufacturer's specifications. If the motor is too large and heavy for the particular boat, it will force the bow up into the air and cause the stern to ride low in the water. This can be dangerous because it reduces stability and freeboard (the distance between the water and the top of the boat's side). Heavy motors also add extra stress to the hull and transom and could reduce structural strength if not designed to fit the boat. Overpowering is very dangerous and causes inefficient engine operating which wastes fuel.

Some outboards with high performance engines have a remote control hydraulic tilting mechanism that allows the skipper to adjust the trim while underway. Being able to adjust the engine angle and balance the craft at the push of a button means a safer, more efficient and comfortable ride for everyone onboard.

For most of us operating with the typical outboard motor, adjusting the trim is a different operation entirely. The trimming device on an outboard motor is a mounting bracket with five holes for a tilt pin. The location of the pin determines the angle between the boat's engine and the transom.

TRIM YOUR BOAT AND YOUR FUEL BILL (continued)

Usually when the motor is in proper running position, the drive shaft is straight up and down; not canted in toward the stern nor angled away from it. If the boat is properly loaded and the drive unit is too close to the transom, it will cause the boat to run with its bow down and plow into the waves. The stern will be raised slightly out of the water and steering will be difficult. However, if the boat's stern is heavily loaded (but not exceeding capacity limitation) and the water calm, moving the tilt pin to a forward hole would correctly adjust the trim for that type of load condition.

If the boat is carrying a normally balanced load and the shaft is tilted too far away from the transom, the boat's bow will ride out of the water and not steer properly. Operating a boat "down by the stern" could cause the following wake to go over the stern and flood the boat if you were forced to suddenly shut the engine down. But if you are carrying a heavy load forward in the bow (not exceeding capacity limitation), setting the tilt pin in the aftermost hole could provide proper trim adjustment.

On large boats where the propeller angle is fixed, the hydraulic trim tab on the transom controls the angle of

TRIM YOUR BOAT AND YOUR FUEL BILL (concluded)

the craft's stern in the water. As the boat's speed increases, the trim tabs exert downward pressure on the water and lift the stern to prevent it from settling too far down. Like the outboard's tilt pin, when properly adjusted for the load and water conditions hydraulic trim tabs can boost a boat's speed and efficiency and save some money of your fuel bills, too.

WATCH THE WEATHER

Survival Skill for the Boater

Fresh air, a mirrorlike sea, the tranquility of gently pulsating swells, everchanging hues of translucent green and blue entice many a boater far from shore. But be wary - nature can create an instant nightmare of raging winds and pounding crests of phenomenal force and you could be trapped - fighting the elements!

Weather and water conditions are critical to the safety and stability of small boats. The best way to handle a small boat in bad weather is to avoid it - if you can. The other way is to always be prepared for the worst. Unless you know how to get maximum performance out of your boat under all conditions, stay close to shore. It's a good idea to leave a float plan with a friend, telling when you expect to return. Then if something happens, search and rescue operations can being. (Don't forget to cancel that float plan if you return early!)

Before you have to face strong winds, heavy seas and tricky currents, experiment with your craft in calm water to learn its idiosyncracies.

Know how and why the propeller and rudder make the boat respond in a certain way. Watch how different trims and load balance affect your boat's performance. Gradually get the feel of your craft in varying wind and weather conditions. As your operating skills improve so will your confidence in the boat's performance.

Always listen to the weather forecasts and check the barometer before leaving home. Low barometer readings usually mean stormy weather approaching. High barometer readings are associated with clearing or fair weather. How fast a storm is approaching and its intensity are indicated by the amount of fall in the barometer reading. If there is a strong chance of bad weather, cancel the cruise and stay home. If there is only a slight possibility of high winds, rough water or heavy seas, keep your load light, evenly distributed and plan to stay near shore. Even if that water is smooth, watch out for rising offshore winds which could cause rough water conditions.

Generally if the wind shifts clockwise (North through East, South and West), it is a sign of good weather. But if the wind "backs", or shifts counterclockwise (North through West, South and East), bad weather may be coming. Clouds with flat bottoms or anvil-shaped tops forming near the horizon usually indicate an upcoming squall. If you see threatening clouds approaching, plan ahead to

WATCH THE WEATHER (continued)

make sure you can reach shore safely before bad weather and water conditions exceed the safe operating limits of your boat. In the event your motor is not operating properly or you are low on fuel, head for shore fast.

If you do get caught in a storm, there are a few things you can do to help insure your chances of survival. First, get everyone, including yourself, into a wearable personal flotation device. Wearable PFDs allow everyone to keep his hands free, so he can keep a hand on the boat when the going gets rough. Place other throwable flotation devices, such as buoyant cushions and ring buoys, where they are immediately available in case anyone falls overboard.

To avoid falling overboard, have everyone sit on the deck or as low on the seats as possible. Keeping his center of gravity low and concentrating the weight in the center helps the boat to return upright after a strong roll. Also, the bow and stern will have more buoyancy to ride up and down without getting buried in the waves.

Check your fuel level. If one tank is nearly empty, switch to a full one since you may not be able to shift in rough water, and you don't want to be

WATCH THE WEATHER (continued)

without power. If you have more than one fuel tank and one is located higher than the other, always use up the fuel in the higher one first. Why? Because a 50 gallon tank weighs 325 pounds and your boat could become unstable if the weight is first reduced below the waterline.

Be sure to close all hatches, windows, portholes, and doors to keep the water and spray out of the boat. If you have portable items on board, such as gasoline cans, anchors, and ice chests, lash them down tightly near where they are to be used, but not underfoot.

Here are a few hints on how to properly handle your boat in heavy seas. When heading into the waves, adjust the boat's speed to just below the speed where the engine begins to plane. This helps to keep the hull deep enough in the water, so the rudder and propeller can still be effective while lifting the bow just enough to prevent being buried in the oncoming wave.

Whenever possible, try to ride the waves crest and still maintain sufficient hull contact with the water to counteract the wind's tendency to blow the boat sideways and out of control. If the waves are heavy, steer the boat so the bow takes the waves slightly to the left or right. This maneuver is called quartering.

Adjust the trim and use only enough power to keep the boat heading into the waves. If necessary, readjust the power so the waves don't pound the hull. Keep the boat from taking waves crossways or over the stern. It could take on water and swamp.

Running before heavy seas can be very dangerous, especially for outboards with low transoms. If yours is low, it would be best to run the bow into the wind and ride out the storm. If you absolutely must run with the wind and your boat has a high stern and plenty of freeboard, keep an eye on the waves following you.

To avoid broaching - being swept sideways and possibly rolled - keep the stern square to the big waves. If experiencing severe conditions, quarter the stern slighting at an angle to the approaching wave. That way less of the transom is exposed to the full force of the wave. This keeps the stern from being lifted so high that the bow is forced down into the water. If the boat is quartered properly, the sea will lift the stern and pass harmlessly under the boat.

358

WATCH THE WEATHER (concluded)

Should your engine lose power, the sea will immediately force your boat sideways into the trough (the area between the waves). This is extremely dangerous, since the force of the waves are now pounding the weakest part of the boat, the sides, instead of the bow. In such an emergency, use a sea anchor or substitute a bucket and tie your anchor line to the handle or to anything that can be thrown out to create a drag. Be sure the other end of the 40-50 foot line is securely tied to the bow of the boat. The sea anchor's extra drag will rpovide considerable resistance to prevent the waves from forcing the boat into a trough. The sea anchor will hold the bow into the oncoming waves the same way an anchor keeps the bow pointed into the current when you anchor in a fast flowing river.

If your craft begins taking on water, start bailing. Either turn on the bilge pumps or have your passengers take turns with manual pumps or buckets. Should the boat begin to sink, never hesitate to lighten the load by tossing out excess baggage.

In an emergency, always try to remain calm and keep everyone seated low in the boat.

BOATING TIP

Overloading is the major cause of fatalities in boating. Know how to determine the safe load capacity and recommended horsepower for your boat. Read the capacity rating plate located on the transom of your boat. It indicates:

(1) The total weight your boat can safely carry. This includes your motor, passengers, equipment and even your hunting dog.

(2) The maximum number of 150 pound passengers that can be carried safely. If you exceed this weight load -- you could get into trouble.

(3) The maximum horsepower your boat can safely handle. Using twice as big a motor won't make you go faster. (But it may make you go under faster!) So follow the manufacturer's recommendations and match your boat and motor for the required use. But remember one thing, those recommendations do not relieve you, the skipper, of the responsibiility for exercising good judgment and common sense.

Safe boating is not merely a matter of luck. It is the combination of careful and systematic preparation in anticipation of possible problems. To be a good, responsible skipper, you must automatically know what to do and how to do it.

APPENDIX 0-11. COPY FOR FEATURE INTENDED FOR BOATING MAGAZINES

ABC's of PFD's

PFD's are the most important piece of safety equipment a boater can have on board. Unfortunately they are often the most non-used, misused or abused items aboard.

By Fay Ainsworth

Smiling flight attendants brief airline passengers about emergency procedures prior to takeoff. Overseas passengers are reminded that inflatable life vests or flotation cushions are stowed under the seat, readily available for any over-the-water emergency.

Even before leaving the dock, cruise ship passengers go through a life boat drill to acquaint them with emergency exit routes, lifeboat stations and the location of their life preservers. Each passenger must don and adjust his personal life vest to prepare him in the event of need.

Commercial whitewater raft trips assign and fit ,a special Type V Personal Flotation Device to each river runner. Complete adjustments are made on dry land and parents are warned not to allow their children near the raft without their life jackets, even when the raft is tied to shore!

Why all the precautions? Because commercial airlines, cruise lines and river outfitters have to comply with special laws and they want to maintain their current high safety records.

But what about you, the recreational boater? When was the last time you showed your passengers where the life preservers were stowed? Did you help them correctly adjust the fit? If you are like many boaters, you probably neglected to even mention the fact that you had them on board in the event of an emergency.

Nationwide statistics show that 1,264 persons died last year as a result of pleasure boating accidents. The majority of the victims did not have or were not wearing a personal flotation device (PFD) when the accident occured. Studies show that if PFDs had been available fatalities could have been reduced.

Why are PFDs so important? Let's review some common questions and find out.

What is a PFD?

A PFD or Personal Flotation Device is the name given to the more familiar life jacket or life preserver. A recreational boater (that's anyone who doesn't carry paying passengers) is required to obey certain U.S. Coast Guard regulations covering the type and use of PFDs when boating on waters under Federal jurisdiction.

What are those regulations?

If your boat is 16 feet or longer you are required to carry on U.S. Coast Guard approved Type I, II, or III (wearable) PFD for each person on board. In addition, you are also required to carry on approved Type IV (throwable ring buoy or buoyant cushion).

Buy my boat is under 16 feet, are there any regulations covering smaller boats?

Yes. On smaller boats, canoes, and kayaks there must be one U.S. Coast Guard approved buoyant cushion or wearable device (Type I, II, or III PFD) of board for each person.

What do the numbers I, II, III, and IV mean?

All Personal Flotation Devices are classified by their performance types. There are five approved types acceptable for boats of specific lengths. The chart on the next page compares the advantages and disadvantages of the different types and their minimum buoyancy requirements.

What does buoyancy mean?

Buoyancy is the force required to keep something afloat. Flotation depends on reserve buoyancy, that is the excess weight it can support that exceeds the amount of weight it must support. An 'approved' PFD provides a specified amount of buoyancy or extra flotation necessary to keep a person afloat for an indefinite period of time with his head and mouth clearing the water.

What does 'approved' signify?

The United States Coast Guard Office of Boating Safety and the Office of Merchant Marine Safety are charged by congress with the responsibility for the establishment and enforcement of design, construction and manufacturing standards for Personal Flotation Devices. All types of PFDs must undergo extensive testing by independent testing laboratories to verify that certain standards have been met. When a testing organization such as Underwriters' Laboratories recommends approval of a device to the U.S. Coast Guard a manufacturer may add the USCG APPROVED/UL 'Listed' label.

Does that mean not every PFD is approved?

That's right. Only those PFDs bearing a USCG APPROVED label qualify. Other devices such as inflatable jackets, vests and belts have not been approved because the U.S. Coast Guard has not established testing standards to certify and approve inflatables for use by recreational boaters. Remember, although inflatable devices do not yet qualify as 'approved' PFDs, there is no law to prevent you from using or keeping them on board for extra safety.

Must PFDs be worn at all times?

No. The law only requires that wearable devices must be readily accessible and that throwable devices be immediately available. Common sense suggests that children, elderly persons, handicapped persons and poor or non-swimmers should wear PFDs whenever they are near or on the water. Certain states require that PFDs be worn by children under a certain age and by all non-swimmers. Check your local boating laws to determine your state requirements.

Photo courtesy Lakeland Boating.

Although this practice is not recommended, grasping an approved Type III float coat can provide support.

Photo courtesy Johnson Outboards.

Stay seated when reeling in your catch and watch your balance. This wise angler is wearing a personal flotation device designed for fishermen. Besides being comfortable there are lots of pockets for handy storage.

How often should PFDs be replaced?

All types of PFDs should last for years if given proper care. After every cruise inspect all PFDs for rips and tears. Remove any stains such as oil, gasoline, battery acid and mildew because they can cause straps, fabric and foam to deteriorate. Make sure all buckles and zippers work properly. Pull on all straps to check that they are firmly attached. If the PFDs are wet, dry thoroughly before stowing in a dry, well ventilated place. If you have kapok filled devices on board check them carefully for hard lumps that indicate a loss of buoyancy. Use your hands to compress all sections and listen for the sound of escaping air that may indicate the protective plastic bag has been punctured. Since kapok is a vegetable fiber with a waxlike coating it will mildew and lose its natural buoyancy if water seeps inside the plastic container.

What if I find a damaged PFD?

Don't try to repair it! Discard any damaged PFDs immediately. Cut into small pieces to prevent reuse. Recently a scavenger removed manufacturer's rejects from a waste container and sewed the slashed edges together. He then offered them for sale as 'reconditioned' PFDs—at bargain prices. Don't be deceived. Buy only new, Coast Guard 'approved' PFDs. It's cheap insurance when compared to the loss of a loved one's life.

Must water skiers comply with the PFD requirements?

Yes, any boat pulling skiers must carry one approved PFD for each skier even though the skier being towed is not in the boat. If a skier is wearing an approved PFD, it is not necessary to carry another one in the boat for him.

Are there special PFDs available for children?

Yes, they are designed for persons weighing less than 90 pounds. Within that limitation they have the same flotation capability as adult PFDs. Adults should never wear a child's device and children should never be provided with an adult size except in an emergency. A new device is not available for infants 30 pounds and under.

Why are there special PFDs for infants?

Because young children's heads are proportionately heavier than their body weight traditional types of PFD's force their faces into the water often floating them helpless in a face-down position. The new PFD has a buoyant ring which encircles the babies head. It is held securely in place with a vest that completely covers the child's upper torso. No matter how much wiggling goes on, the device comfortably protects the child until removed by an adult.

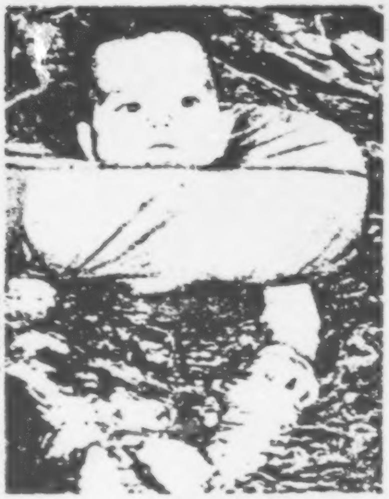


Photo courtesy Stearns

This new Type III device is designed to keep toddlers and babies weighing 30 pounds or less safe in or around the water.

To really understand the characteristics of PFDs you should test them before stowing them aboard.

Photo courtesy Mercury Marine

Now is the time to determine if your lifesaving equipment meets specified requirements. Let your family experience the flotation qualities of recommended lifesaving equipment. Besides having fun, they'll gain valuable experience on how to react in case there is an emergency.

On a sunny summer afternoon have each family member put on his PFD and adjust the fit. Then the fun begins:

1. Enter the water wearing the PFD. Make certain all cords, straps, and zippers are securely fastened.
2. Assume a face down position in neck deep, calm water such as swimming pool or supervised swim area.
3. Place your face in the water, exhale, and relax. Let your arms and legs go limp and pretend to be uncon

363

4. Mentally note how long it takes your PFD to turn you face upward. (Note: if you are wearing a Type III device the inherrent danger of its not turning an unconscious person face upward will become quite evident.) Check the PFD chart for various turning characteristics.

Here's another test to give you an idea of the flotation characteristics of the various PFDs. Experiencing the feeling of floating in a vertical or slightly backwards position may build confidence in non-swimmers and people afraid of being immersed in the water.

1. While standing in shoulder deep water, lean back and let your knees float off the bottom.
2. Now lean your head back and tuck your knees up and grasp them to your chest with your arms. Try to relax and float in this position. This fetal position helps protect the body's thermal core and helps reduce the loss of body heat by about two-thirds. In water of 35 degrees F to 50 degrees F this "self-huddle" position could save your life from hypothermia. Remember it!

While you are in the water there's one more PFD experience you should try. In order to really understand the difficulty of donning a PFD in the water—try it! It will reinforce the need to adjust PFDs and wear them before getting wet.

Type I — Foam bib life preservers are the easiest and fastest to get into while in the water. Just push your shoulders through the chest straps and your head through the neckhole. Squeeze the front chest sections together and cinch up the front straps.

Type II — Buoyant vests have two straps which makes them a little more difficult to put on in the water. After pushing your head through the neckhole, tie the neck straps and then clip the chest strap.

Type III — Marine Buoyant Devices really should be worn before entering the water and here's why. To put them on you have to put your arms through the armholes, one at a time, otherwise, you must submerge and try to come up inside the coat with your arms outspread. This isn't easy for an inexperienced swimmer!

Type IV — Although Throwable Buoyant Cushions are not designed for wearing there is a proper way to get the maximum buoyancy with the least amount of effort. First enter the water holding the cusion by one strap. **NEVER jump into the water wearing a buoyant cushion!** The impact of you and the buoyant cushion hitting the water together can be very dangerous. Once in the water insert one leg through one strap and push the cushion under your chest before placing the other strap over head and neck. **ALWAYS position the body over the cusion and never wear the cusion on your back since it will force your face into the water!** In a panic situation both arms may be placed through the grab straps and the buoyant cushion may be used as a raft when grasped to the chest.

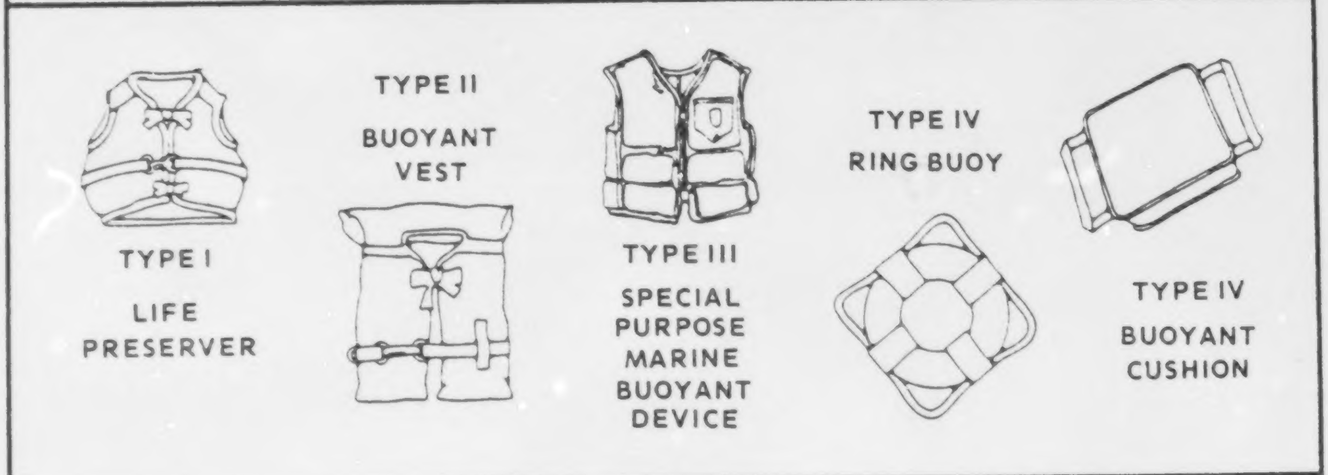
Another method is to put one leg through the strap and then place the opposite arm through the other strap. Remember buoyant cushions are extra flotation devices designed to be thrown to someone struggling in the water. They should be stowed in a convenient and accessible place—ready for any emergency.

Practice throwing Type IV devices both with and without a 25 to foot line attached. Float an empty plastic container in the water and use it as a practice target. Have each family member practice holding the coiled line, tossing and retrieving the ring buoy or buoyant cushion. Caution everyone to be careful and not "hit" the target but to throw the device beyond the "victim" and then pull it within reach. Hitting someone in the water could be dangerous. Remind participants that although a line attached to a Type IV device may reduce the distance it can be thrown, it greatly improves the probability of rescue. Cushions or ring buoys without line attached should be thrown as close to the victim as possible. Remember not to "hit" the target.

And while you're floating around in the water remember a PFD is not a substitute for good swimming ability, it is merely an aid to keep you afloat. The basic ingredient of water safety is knowing how to swim, so learn about swimming and know your limitations.

PFD's when worn can help provide you and your passengers with "protection from drowning".

TYPES OF PERSONAL FLOTATION DEVICES



COMPARISON OF U.S. COAST GUARD APPROVED PERSONAL FLOTATION DEVICES

TYPE	PRIMARY USE	ADVANTAGES	DISADVANTAGES
		(Flotation - Visibility - Wearability - Comfort)	
TYPE I **Life Preservers** Kapok filled and plastic foam bibs. Made of fibrous glass and or unicellular foam.	Designed to turn an unconscious wearer from a face-down position in the water to a face-up or slightly backward position. Recommended for offshore cruising. Acceptable for all size boats.	Red or orange color makes for good visibility. Good flotation has more than 20 pounds of buoyancy. Five to nine pounds over minimum requirements. Keeps wearer's head and shoulders out of the water. Provides four to six inches of above the water mouth clearance for breathing. Should turn wearer face up in one to three seconds.	Bulky construction restricts normal movement out of water. Wearer's head is pushed slightly forward due to extra flotation around collar. This could become uncomfortable. Be careful that the jacket is positioned properly with the waist straps tightly cinched. Sometimes synthetic straps will slip when wet even when double knotted.
TYPE II **Buoyant Vest** Kapok or Plastic foam bibs. Foam-filled vests.	Designed to turn an unconscious person from a face-down to a face-up vertical or slightly backward position. Acceptable for all recreational boats. Recommended for closer inshore cruising.	Must have at least 15.5 pounds of buoyancy. Should turn an unconscious wearer face up in about five to six seconds.	Slightly less buoyancy than Type I. Wearer's mouth is closer to the water's surface. When the neck rests against the back cushion the shoulders barely break the water's surface. In rough water waves could occasionally cover the face. Out of the water foam bibs are less comfortable than the soft kapok bibs. Kapok bibs can cause chafing around the neck. The smooth plastic surface of the plastic bibs can become wet and uncomfortable in hot weather.
TYPE III **Special Purpose Marine Buoyant Devices** Foam-filled vests Foam ski vests Sleeved jackets or Float coast. Foam-filled vests	Designed to keep a conscious person in a vertical or slightly backward position in the water. Recommended for in-water sports, or on lakes and close inshore operation on confined bodies of water such as lakes and impoundments. Acceptable for all size boats.	Designed to be worn Type IIIs feature trim good looks, snappy colors, fashionable and functional styling Type III devices have the same buoyancy (at least 15.5 pounds) as Type II but they have a lesser turning ability to allow for a more comfortable design. Sleeved float coats not only help keep the wearer warm out of the water but if the person goes overboard they help insulate the body against heat loss while keeping the person afloat. This built-in hypothermia protection helps to increase cold water survival time. Float coats can provide a feeling of stability while floating if the arms are held away from the body.	Wearer must be conscious and make an effort to assume a slightly backwards position since Type IIIs have a tendency to float an unconscious wearer face down. Since they are not designed to keep the wearer's head out of the water persons leaning backwards trying to maintain a relaxed floating position will often have their ears and forehead covered with water. Wearers floating in choppy waters may have only three inches of mouth clearance. Thus they should not be used by non swimmers who might panic when their face and head is continuously immersed in water.

COMPARISON OF U.S. COAST GUARD APPROVED PERSONAL FLOTATION DEVICES

TYPE	PRIMARY USE	ADVANTAGES	DISADVANTAGES
		(Flotation - Visibility - Wearability - Comfort)	
TYPE III (Con't.)		The foam filled sports vests and float coats are popular year around. The variety of functional designs some with extra pockets and special camoflauge colors are available for hunting and fishing. For greater wearability during hot summer days many sports vests have a full nylon mesh lining for extra body comfort. Adjustable laces allow for comfortable wearing over bulky clothing. Some childrens' models have leg straps to prevent the vest from riding up. An adjustable waist strap also helps eliminate this problem.	Since sleeved jackets are diffucit to swim in, wearers may tire more easily. Float coats are too hot to wear during warm weather. They are also very heavy when climbing out of the water since they absorb excessive amounts of water. If not properly zipped and fitted to the wearer float coats will often ride up about the waist when floating. The solution to this problem is to lean backwards and pull the jacket down below the waist. Type III vests with side lacing straps should be firmly tied to fit the wearer, otherwise they can slip up. Smooth plastic surfaces of ski vests may become slimy in hot weather. This discourages out-of-water wearing while boating. Some Type IIIs have poor visibility.
TYPE IV **Buoyant cushions** **Ring Buoys**	Designed as a rescue device to be thrown to a person in the water. Acceptable for boats less than 16 feet and canoes and kayaks. There must be at least one on board any boat over 16 feet.	All Coast Guard approved ring buoys are fitted with a grab rope. They have good visibility since they are either white or orange. Both cushions and ring buoys are designed to be grabbed by persons in the water. Buoyant cushions must be at least two inches thick and have at least 225 sq. inches of top surface. Ring buoys should be mounted on brackets where they will be immediately available when needed.	
TYPE V **Special Purpose Devices** not classified elsewhere.	Open classification to provide consideration for approval of devices designed for a specific and restricted use where circumstances indicate none of the other types are suitable.	For example commercial whitewater rafts carry a special Type V vest which provides 22 pounds of buoyancy.	

APPENDIX O-12. COPY FOR FEATURE INTENDED FOR HUNTING AND FISHING MAGAZINES

Sportsmen Afloat

Some Water Survival Tips for Hunters and Fishermen

Of the hundreds of boating accidents that make up each year's depressing national statistics, it shouldn't be much of a surprise that hunters and anglers are involved in about one-third. But what might be surprising is that many sportsmen who use boats don't really consider themselves boaters at all.

Rowboats, dinghies, canoes, johnboats, prams, rafts, driftboats or any of the other various craft associated with hunting and fishing are often considered "just part of the equipment" by their users. And as long as the boats get them to where they want to go—where they can expect to find fish or game—that's all that really matters.

Though many sportsmen look at their boats as nothing more than hunting or fishing platforms, many of these people spend more time on the water than the "true boater"—the person who buys his cruiser or sailboat and enjoys spending a weekend skimming along the water just for the sake of being there.

Because hunting and fishing boats are a means to an end, rather than part of the final objective, sportsmen are often guilty of ignoring or breaking some of the most basic, common-sense, water safety rules. A fisherman heading for a spot where 3-pound rainbow are dimpling the surface or hungry walleye are smashing everything that moves can easily be preoccupied when it comes to the operation of his boat. Likewise the duck hunter wanting to get to his favorite marsh to set out his decoys long before dawn's first crack might just ignore a small detail or two that could make the difference between a successful day on the water and total disaster.

Because of the nature of his boating uses and the added equipment and techniques that play a part in the use of a boat for hunting and fishing, good boating operation just may be more important to the sportsman than he realizes. Items such as rods, fishing line, hooks, fish stringers, bait buckets, shotguns, decoys and hunting dogs complicate the situation when placed anywhere between the bow and stern. Anglers and hunters who do their trolling, casting, shooting or searching from a boat should realize that unexpected situations can and do arise.

Even the primary objectives of the outing — fish or game — can get the boater / sportsmen into big trouble in a short time. In their excitement, fishermen reaching to put the net under a hefty trout or standing to clear the line as it zig-zags toward the propeller have capsized their boats. In some cases there were fatal consequences.

Reaching out to retreive a bagged duck can have similarly disastrous results as one sportsman learned last year.

It happened on a duck-hunting trip. A bird fell far from the blind, and the hunter decided to take his dog and go after it using one of the small rowboats hidden nearby. The duck had continued to drift after it went down and was finally located near a small island. When the hunter reached for the duck which appeared to be dead, it suddenly began flapping and struggling to escape. He should have let go and tried again after the bird calmed down, but his natural instinct was to hang on and pull the struggling duck aboard. The bird was heading away from the boat, and the off-balance hunter overextended in his attempt to keep up with it. The small boat went over. Hunter, shotgun, dog and everything went into the icy water.

Luckily he was wearing a Coast Guard approved flotation jacket. But waders, heavy clothes, and ammunition were too much for it. Down he went. He remembered to bend his knees and was able to trap some air in his waders. Fortunately he surfaced near the skiff and was able to paddle a few feet and grab the boat. Should he swim for shore? Should he stay with the boat and wait for help? No, it was cold and foggy and he was far from his friends in the blind. Hypothermia or heat loss from the cold was likely to occur if he stayed in the water too long. He knew he couldn't get back into the skiff but there was an island nearby. He kicked off the extra weight and stroked his way slowly to the shore dragging the skiff along.

He made it safely to dry land but he knew he was in for trouble from hypothermia unless he got back to his friends and dry clothes. But the oars were still floating offshore. He sent his dog to fetch them and the big lab obeyed. It was slow going back to the blind and the fog was getting thicker. Ultimately he made his way back to the general area where his hunting partners were and they "hollered" him to safety. Fortunately he was able to relate this story. Others aren't so lucky as the accident reports show.

"Two persons were drift fishing from a 14-foot motorboat. One person stood up to reel a fish in and the reel on his rod broke. He at-

Danger awaits this unwary hunter if he stands to shoot and decreases the already low freeboard so that water comes in over the stern and swamps the boat. Stay seated when shooting and remember to always wear a U.S. Coast Guard approved personal flotation device such as the specially designed sportsmans vest when hunting. It could help save your life. Photo courtesy Mercury Marine.

tempted to grab the fish line and stumbled, falling over the side. He was not wearing a PFD and did not surface after falling overboard. His fishing partner did not have a PFD and did not dive in after the victim."

"Three persons on board a 12 foot motorboat were fishing too close to the lower rollers on a lock and dam. The boat was caught in the undercurrent and capsized. Two persons drowned. None of the occupants were wearing PFDs."

"Two men were fishing in a 13 foot rowboat, one man's hat blew off. He reached over the side to get it and slipped. His friend lunged to grab him and the boat capsized. They lost $600 worth of fishing equipment."

"Four men were in a 10 foot johnboat with a capacity label which read 'Person Capacity: 215 lbs.' No one wore PFDs because "no one wanted to put them on." About 100 feet from shore the boat swamped and capsized. Two men drowned."

Accident reports like these go on and on. Many sound incredible but the tragedies are real. Capsizing, overloading, falls overboard and lack of personal flotation devices spell disaster for many sportsmen. In most instances the accidents could be avoided if good common sense were substituted for rash actions. Here are some survival tips to insure good hunting and fishing for many seasons.

- Don't overload the boat with passengers and gear. Besides being dangerous and reducing freeboard (the distance from the water to the top edge of the boat's side—the gunwale) it also makes casting difficult.

- When landing a fish or setting a decoy, stay low in the boat and don't lean over the sides. Use an oar, a rod or your net to extend your reach.

- When trolling, never leave the helm unattended, always slow the boat to idle or shut off the engine if another activity requires your attention.

- Do not sit on the back of a seat or the side of the boat while underway.

- Keep an eye on the weather and heed storm forecasts. If the weather report says "no"—don't go.

- In any boat with a low transom stay close to shore in case rough waves pour water over the stern.

- Never turn the stern into a large oncoming wave or wake. Try to avoid it or head the bow toward it.

- Avoid fast stops, starts and sharp turns when moving from one fishing spot to another.

- Train your hunting dog to lie still in the bottom of your boat. Never allow animals to wander onboard—they could fall overboard and when trying to rescue them—you could too.

- When operating a low transom boat de-accelerate and back up slowly to prevent being swamped by the stern wake surging over the transom.

- Standing is dangerous in a small boat. Keep your body's center of gravity low and along the centerline of the boat.

- Always stow gear under the seat out of the way. Never carry equipment piled high atop the seats. It raises the boat's center of gravity and makes it less manuverable and less stable.

- Never stand while casting or netting a fish. It causes the boat to be unstable. You may slip and fall overboard.

- If fishing near a high traffic area watch out for the wakes of larger boats. Whenever possible anchor your boat with the bow facing oncoming wakes.

- In a low transom boat never stand up to pull in a stuck anchor. The already shallow freeboard may be reduced to zero causing the boat to swamp. Remember always anchor the boat from the bow.

- Wear a PFD when leaning over the stern to inspect the motor or untangle fishing line.

- Do not try to change places when a small boat is underway. Head in towards shore and idle the motor. Move any rods or fishing gear out of the way to avoid tripping or entanglement. Stay low, hold the gunwale to steady your balance and step smoothly along the keel. Seated companions should counterbalance your weight shift. Remember the rule "one at a time" when changing positions.

- If a sudden thunderstorm catches you fishing in open water keep as low in the boat as possible and do not use fishing rods or other gear that may attract lightening. Try to get as close to shore as possible so that objects at a higher elevation than your boat will serve as more likely targets for the electrical discharge.

- If a fishing partner falls overboard in the excitement of trying to keep "one on" try to reach him with the tip of a fishing rod or the blade of an oar. Throw a buoyant cushion if one is handy. Pull him towards the boat. After shuting off the engine and waiting for the propeller to stop spinning, help him board over the stern. Move any gear out of the way and keep the boat balanced.

- If you have an electric start outboard use a kill switch with a lanyard attached to your belt or PFD. If you fall overboard the switch immediately stops the engine. This prevents the boat from running wild and endangering others including yourself.

- Always carry a personal flotation device for each person on board, better yet, wear it—especially if you are alone.

- If a miscalculated load shift capsizes or swamps the boat, keep calm and try to grab something that floats: an oar, ice chest, tackle box or buoyant cushion. Paddle to the boat and stay with it. If you can climb aboard even a swamped craft will support the number of passengers listed on the capacity rating plate.

- Learn to swim.

APPENDIX O-13. NEWSPAPER FILLER ITEMS

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U.S. COAST GUARD
WASHINGTON, D.C. 20590
PHONE:

NEWSPAPER FILLER MATERIAL: "BOATING TIPS"

Weather Cues

As a boater, you need to be sensitive to weather cues. For instance, wind shifts can mean that a sudden change of weather is on the way and static on the AM radio could mean that there are thunderstorms nearby.

###

Boating in Foul Weather

As a boater, you should know what to do when caught in foul weather. First, get everyone into his lifejacket and keep them seated. Reduce speed, secure all loose items, keep the boat free of water, and angle into the waves as you proceed to the nearest safe shore.

###

Small Craft Advisories

As a boater, you should know how to read weather information posted at local marinas or launch sites. For instance, a red pennant displayed by day or a red light over a white light by night, is an alert that wind and/or water conditions are potentially dangerous to small craft.

Although you may see these advisories displayed in what appears to be good boating weather and may be tempted to ignore them, don't! Experienced boaters take these advisories seriously and stay very close to sheltered water if they do proceed out.

###

APPENDIX P. SCRIPT FOR THREE VERSIONS OF THE ANIMATED TELEVISION SPOTS FOR EXPERIMENTAL DEMONSTRATION

MAXIMUM PARTICIPATION PSA

	VIDEO	AUDIO
(00:00)	FADE IN	1. ANNOUNCER (VO):
	BLUE BACKGROUND, WORDS APPEAR ONE-BY-ONE AS ANNOUNCER READS THEM	2. When you go out in a boat, other boaters 3. are assuming that you know the
	FADE OUT WDS	4. rules of the road...
	"DO YOU?"	5. Do you?
	DISSOLVE TO POINT-OF-VIEW SHOT THRU BOAT'S WINDSHIELD AS ANOTHER BOAT APPROACHES FROM HEAD-ON	6. (FADE IN SFX: WATER AND MOTORBOAT) 7. Suppose another boat approaches you 8. and signals two blasts. (SFX: BOAT)
	"BLAST LINES" APPEAR	9. APPROACHING, BLAST BLAST)
(00:15)	FREEZE-FRAME	10. What do you do? (PAUSE) (SFX: OUT)
	DISSOLVE TO BLUE BACKGROUND	11. Want to find out?
	COAST GUARD LOGO FLOATS DOWN AND SETTLES ON LOWER THIRD OF SCREEN	12. For a recorded answer, call the 13. Coast Guard at
	1-800-594-6000 APPEARS A CHUNK AT A TIME IN MIDDLE OF SCREEN	14. 1-800-594-6000 ("ONE, EIGHT-HUNDRED, 15. FIVE, NINE, FOUR, SIX-THOUSAND").
	"YOU'RE OBLIGATED TO KNOW, YOU KNOW" APPEARS A WORD AT A TIME AT TOP OF SCREEN	16. We'll tell you what's meant by two blasts. 17. Because if you're a boater, your're obligated 18. to know, you know.
(00:27)	EDUCATONAL LOGO APPEARS NEXT TO COAST GUARD LOGO	19. (SFX: DING DING)
(00:28)	FADE TO BLACK	20. FADE TO BLACK

MODERATE PARTICIPATION PSA

	VIDEO	AUDIO
(00:00)	FADE IN	ANNOUNCER (VO):
	BLUE BACKGROUND, WORDS APPEAR ONE-BY-ONE AS ANNOUNCER READS THEM	When you go out in a boat, other boaters are assuming that you know the
	FADE OUT WDS	rules of the road...
	"DO YOU?"	Do you?
	DISSOLVE TO POINT-OF-VIEW SHOT THRU BOAT'S WINDSHIELD AS ANOTHER BOAT APPROACHES FROM HEAD-ON	(FADE IN SFX: WATER AND MOTORBOAT) What does it mean if another boat approaches you and signals two blasts. (SFX: BOAT
	"BLAST LINES" APPEAR	APPROACHING, BLAST BLAST)
(00:15)	FREEZE FRAME	(PAUSE)
	DISSOLVE TO BLUE BACKGROUND COAST GUARD LOGO FLOATS DOWN AND SETTLES ON LOWER THIRD OF SCREEN. 1-800-594-6000 APPEARS A CHUNK AT A TIME IN MIDDLE OF SCREEN	Two blasts means they intend to pass you on your right. For a recorded message, call the Coast Guard at 1-800-594-6000 ("ONE, EIGHT-HUNDRED, FIVE, NINE, FOUR, SIX-THOUSAND").
	"YOU'RE OBLIGATED TO KNOW, YOU KNOW" APPEARS A WORD AT A TIME AT TOP OF SCREEN	We'll tell you how to find our more about the rules of the road. Because if you're a boater, you're obligated to know, you know.
(00:27)	EDUCATIONAL LOGO APPEARS NEXT TO COAST GUARD LOGO	(SFX: DING DING)
(00:28)	FADE TO BLACK	FADE TO BLACK

MINIMUM PARTICIPATION PSA

	VIDEO	AUDIO
(00:00)	FADE IN	(SFX: MOTORBOAT, SLOSHING WATER)
	POINT-OF-VIEW THRU WINDSHIELD OF BOAT	ANNOUNCER (VO): When you go out in a boat, you should know the rules of the
	ANOTHER BOAT APPROACHES	road. (SFX: ANOTHER BOAT APPROACHES) For instance, if another boat approaches you from head-on, ordinarily they would pass to your left side. But if you hear
	"BLAST LINES" APPEAR	two blasts of the horn (BLAST BLAST), that means they intend to pass you on your
(00:20)	"BLAST LINES"	right. (BLAST BLAST FROM OUR BOAT)
	DISSOLVE TO BLUE BACKGROUND	(FADE OUT SOUND EFFECTS)
	FADE IN COAST GUARD LOGO	To find out how to learn more rules of the road, call the Coast Guard at
	FADE IN 1-800=594-6000 (Top Third)	1-800-594-6000 ("ONE EIGHT-HUNDRED FIVE, NINE, FOUR, SIX-THOUSAND"). After all, if you're a boater, you're obligated to know, you know.
(00:27)	NEW LOGO APPEARS	(SFX: DING DING)
(00:28)	FADE TO BLACK	FADE TO BLACK

APPENDIX Q. TEST BOOKLET USED IN THE TELEVISION PSA DEMONSTRATION EXPERIMENT

TODAY'S DATE ____________________

TIME OF COMMUNICATION CLASS _____

NAME OF COURSE INSTRUCTOR

____

EXPERIMENTAL BOOKLET
FOR RECREATIONAL BOATING
PROJECT

WYLE LABORATORIES

PART ONE

PLEASE ANSWER THE QUESTIONS ON THIS PAGE. THEN TURN TO THE NEXT PAGE AND WAIT FOR FURTHER INSTRUCTIONS.

Please indicate your sex

__________ male __________ female

Indicate your age __________

Indicate your rank

__________ freshman
__________ sophomore
__________ junior
__________ senior
__________ other (Please explain) ______________________________

Indicate your recreational boating experience

__________ under 20 hours
__________ 20 to 100 hours
__________ 101 to 500 hours
__________ greater than 500 hours

Indicate your recreational boating education from formal boating courses (check more than one if relevant)

__________ no formal course
__________ U.S. Coast Guard Auxiliary course
__________ U.S. Power Squadron course
__________ State sponsored course
__________ Boy/Sea Scout course
__________ local boating club course
__________ public school course
__________ college boating course
__________ summer camp boat training
__________ marine dealers/marina operator training
__________ YMCA course
__________ other (Please specify) ______________________________
____

UNITED STATES COAST GUARD
1790

INSTRUCTIONS

PLEASE COMPLETE THE FOLLOWING QUESTIONS CONCERNING THE PUBLIC SERVICE ANNOUNCEMENT INTENDED FOR RECREATIONAL BOATERS. THIS WAS THE SECOND ANNOUNCEMENT YOU SAW A MOMENT AGO. THE QUESTIONS LISTED REQUIRE TWO KINDS OF ANSWERS--SPECIFIC IMPRESSIONS YOU HAVE OF THE ANNOUNCEMENT, AND INFORMATION YOU CAN RECALL FROM THE ANNOUNCEMENT. IT IS IMPORTANT THAT THE QUESTIONS ARE ANSWERED IN THE ORDER GIVEN.

THE FIRST SET OF QUESTIONS CONCERN YOUR IMPRESSIONS OF THE ANNOUNCEMENT. PLEASE CHECK _✓_ THE SPACE THAT MOST CLOSELY CORRESPONDS TO YOUR FEELINGS ABOUT THE ANNOUNCEMENT. PLACE ONLY ONE CHECK MARK ON EACH SCALE.

---

1. Please indicate the extent to which you felt *personally involved* in the announcement.

extremely involved	_____	_____	_____	_____	extremely uninvolved

2. Indicate the extent to which you feel the announcement is valuable to you.

highly valuable	_____	_____	_____	_____	not valuable

3. Indicate the extent to which you feel the announcement has credibility.

highly credible	_____	_____	_____	_____	not credible

4. Indicate the extent to which you feel the U.S. Coast Guard recorded telephone message will have value for you.

highly valuable	_____	_____	_____	_____	not valuable

5. Of all the materials presented in the announcement, what one thing contributed most to your understanding of the information?

____

____

THE FOLLOWING QUESTIONS CONCERN INFORMATION YOU MAY RECALL FROM THE BOATING ANNOUNCEMENT. PLEASE ANSWER THE QUESTIONS IN THE ORDER THEY ARE PRESENTED. IN THE EVENT THAT YOU ARE UNSURE OF AN ANSWER, GO AHEAD AND INDICATE YOUR BEST GUESS.

1. When you go out in a boat, other boaters are assuming that you know the ____.

2. The boat approaching you in the announcement signals how many blasts on its horn? ______________________________.

3. What is the complete U.S. Coast Guard telephone number to call for the recorded message? (Give all 11 digits.) _ _ _ _ _ _ _ _ _ _ _.

4. This announcement says that if you are a boater, you are obligated to ____.

5. What is the subject of the U.S. Coast Guard recorded telephone message? ____.

WHEN YOU HAVE FINISHED. PLEASE TURN OVER YOUR BOOKLET, SO WE CAN DETERMINE WHEN EVERYONE HAS FINISHED.

APPENDIX R. RECALL TEST FOR THE LABORATORY READING DEMONSTRATION

EXPERIMENTAL BOOKLET
FOR RECREATIONAL BOATING
PROJECT

TODAY'S DATE ____________________

TIME OF PSYCHOLOGY CLASS __________

NAME OF COURSE INSTRUCTOR

____

WYLE LABORATORIES

THIS BOOKLET CONTAINS SEVERAL QUESTIONS PERTAINING TO THE MATERIAL YOU HAVE JUST READ. PLEASE ANSWER THE QUESTIONS ON THIS PAGE BEFORE GOING ON TO THE NEXT PAGE. YOUR NAME IS NOT REQUIRED ON THIS BOOKLET.

Please indicate your sex

__________ male __________ female

Indicate your age __________

Indicate your rank

__________ freshman
__________ sophomore
__________ junior
__________ senior
__________ other (Please explain) ______________________________

Indicate your recreational boating experience

__________ under 20 hours
__________ 20 to 100 hours
__________ 101 to 500 hours
__________ greater than 500 hours

Indicate your recreational boating education from formal boating courses (check more than one if relevant)

__________ no formal course
__________ U.S. Coast Guard Auxiliary course
__________ U.S. Power Squadron course
__________ State sponsored course
__________ Boy/Sea Scout course
__________ local boating club course
__________ public school course
__________ college boating course
__________ summer camp boat training
__________ marine dealers/marina operator training
__________ YMCA course
__________ other (Please specify) ______________________________
____

380

PLEASE COMPLETE THE FOLLOWING QUESTIONS CONCERNING THE MATERIAL PRESENTED IN THE PAMPHLET YOU HAVE JUST READ. IF YOU HAVE ANY OTHER SOURCES OF BOATING INFORMATION ON QUESTIONS IN THIS LIST, BE SURE YOU USE THE PAMPHLET AS THE SOURCE FOR ANSWERING THE QUESTIONS. IT IS IMPORTANT THAT YOU ANSWER THE QUESTIONS IN THE ORDER GIVEN FROM ONE THROUGH 21.

1. A boat's ______________ is equated with balance.

2. It is important to keep your boat in balance side to side and ______ ______ ________.

3. One of the natural motions of a boat that is related to stability is ____________.

4. The upward force that allows the boat to float is called ______________.

5. The downward force that keeps the boat in the water is called __________.

6. A point where the weight of the boat and the weight of everything on board could be placed to produce the same effect on stability as if the weight were distributed throughout the boat is called ____________ ____ ________________.

7. The roll stability of a boat is reduced when two things occur: when weight is placed to one side of the centerline of the boat, and when weight is ____.

8. The number of seats in a boat is a good indication of the number of persons it can carry safely. True ________ False ________

9. Boats under ________ feet in length must display a U.S. Coast Guard capacity plate.

10. If there is no capacity plate displayed in your boat, you can determine roughly how many people you can safely carry by calculating a formula. Does this calculation hold true for all weather conditions?
Yes ________ No ________ (check one)

11. The way equipment and gear are stowed in the boat will affect people's movement in the boat. How should you arrange supplies to encourage safe movement of boat passengers? ______________________________
____.

12. It is important to keep ____________ and a fire extinguisher accessible as opposed to other gear and supplies not needed for the moment.

13. What is the name of the vertical distance from the waterline to the boat's lowest edge where water can enter inside? ______________________.

14. The load you put in your boat affects stability in two major ways. The actual weight is one factor; the other factor is ______________________ ______________________.

15. Using too large an outboard motor is unsafe for two reasons. It lowers the boat in the water, and ______________________________.

16. Loading your boat too low in the water combined with unfavorable weather and water conditions could produce ____________ of your boat.

17. How should you recover an object from the water after you have brought the boat close alongside the object? __________________________ ____.

18. One of the dangers of having too short an anchor line is that the boat can drift. The other danger is ______________________________.

19. The ratio of water depth to anchor line is called ________________.

20. What is the safe ratio of anchor line to water depth recommended in the pamphlet? ________________

21. Always secure the anchor line to the ____________ end of the boat.

WHEN YOU HAVE FINISHED, PLEASE CLOSE YOUR BOOKLET SO WE CAN DETERMINE WHEN EVERYONE HAS FINISHED.

APPENDIX S. RECALL TEST FOR THE SIMULATION READING DEMONSTRATION

EXPERIMENTAL BOOKLET
FOR RECREATIONAL BOATING
PROJECT

TODAY'S DATE ______________________

TIME OF PSYCHOLOGY CLASS __________

NAME OF COURSE INSTRUCTOR

____

WYLE LABORATORIES 383

THIS BOOKLET CONTAINS SEVERAL QUESTIONS PERTAINING TO THE MATERIAL YOU HAVE JUST READ. PLEASE ANSWER THE QUESTIONS ON THIS PAGE BEFORE GOING ON TO THE NEXT PAGE. YOUR NAME IS NOT REQUIRED ON THIS BOOKLET.

Please indicate your sex

__________ male   __________ female

Indicate your age __________

Indicate your rank

__________ freshman
__________ sophomore
__________ junior
__________ senior
__________ other (Please explain) ______________________________

Indicate your recreational boating experience

__________ under 20 hours
__________ 20 to 100 hours
__________ 101 to 500 hours
__________ greater than 500 hours

Indicate your recreational boating education from formal boating courses (check more than one if relevant)

__________ no formal course
__________ U.S. Coast Guard Auxiliary course
__________ U.S. Power Squadron course
__________ State sponsored course
__________ Boy/Sea Scout course
__________ local boating club course
__________ public school course
__________ college boating course
__________ summer camp boat training
__________ marine dealers/marina operator training
__________ YMCA course
__________ other (Please specify) ______________________________
____

PLEASE COMPLETE THE FOLLOWING QUESTIONS CONCERNING THE MATERIAL PRESENTED IN THE PAMPHLET YOU HAVE JUST READ. IF YOU HAVE ANY OTHER SOURCES OF BOATING INFORMATION ON QUESTIONS IN THIS LIST, BE SURE YOU USE THE PAMPHLET AS THE SOURCE FOR ANSWERING THE QUESTIONS. IT IS IMPORTANT THAT YOU ANSWER THE QUESTIONS IN THE ORDER GIVEN FROM ONE THROUGH 16.

1. A boat's ______________ is equated with balance.

2. One of the natural motions of a boat that is related to stability is ____________.

3. The upward force that allows the boat to float is called _______________.

4. The downward force that keeps the boat in the water is called __________.

5. A point where the weight of the boat and the weight of everything on board could be placed to produce the same effect on stability as if the weight were distributed throughout the boat is called ____________ ____ ________ ________.

6. The roll stability of a boat is reduced when two things occur: when weight is placed to one side of the centerline of the boat, and when weight is ____.

7. Boats under _______ feet in length must display a U.S. Coast Guard capacity plate.

8. If there is no capacity plate displayed in your boat, you can determine roughly how many people you can safely carry by calculating a formula. Does this calculation hold true for all weather conditions?
Yes _______ No _______ (check one)

9. The way equipment and gear are stowed in the boat will affect people's movement in the boat. How should you arrange supplies to encourage safe movement of boat passengers? _________________________________ ____.

10. It is important to keep ____________ and a fire extinguisher accessible as opposed to other gear and supplies not needed for the moment.

11. What is the name of the vertical distance from the waterline to the boat's lowest edge where water can enter inside? ___________________________.

12. How should you recover an object from the water after you have brought the boat close alongside the object? _______________________________ ____.

13. One of the dangers of having too short an anchor line is that the boat can drift. The other danger is ____________________________________.

14. The ratio of water depth to anchor line is called ___________________.

15. What is the safe ratio of anchor line to water depth recommended in the pamphlet? __________________

16. Always secure the anchor line to the _______________ end of the boat.

WHEN YOU HAVE FINISHED, PLEASE CLOSE YOUR BOOKLET SO WE CAN DETERMINE WHEN EVERYONE HAS FINISHED.

U.S. GOVERNMENT PRINTING OFFICE: 1978 O—726-045 1474 REGION 3-1